CHAPTER 38

LIST OF EFFECTIVE TEMPORARY REVISIONS

FOLLOWING IS A COMPLETE LISTING OF ALL ACTIVE TEMPORARY REVISIONS (TR'S). TR'S NOT LISTED SHOULD BE REMOVED. THE ATA NUMBER, CONFIG CODE AND PAGE NUMBER IDENTIFIES THE PAGE PRECEDING THE TR.

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NONE

CHAPTER 38

WATER/WASTE

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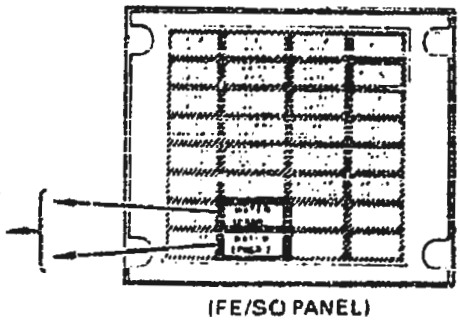
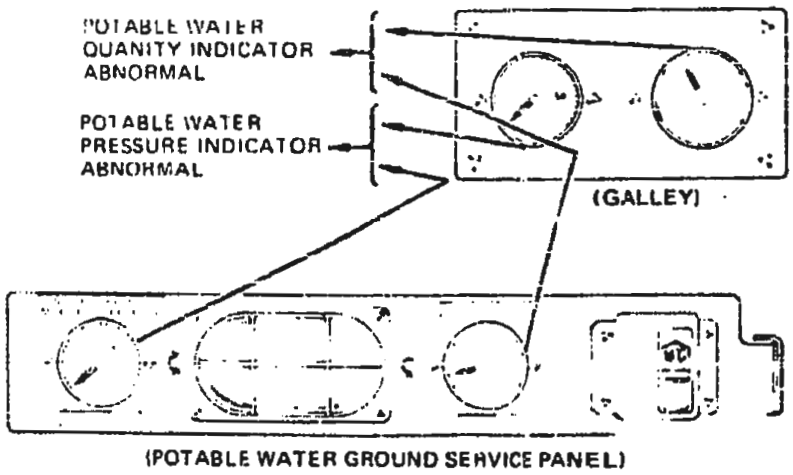
	Air Supply System Electrical Schematic		109/110

WATER/WASTE CONTENTS

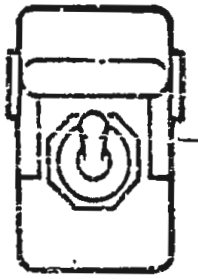



POTABLE WATER QUANITY INDICATOR ABNORMAL
POTABLE WATER PRESSURE INDICATOR ABNORMAL
(GALLEY)
(POTABLE WATER GROUND SERVICE PANEL)

TITLE	CHAP/SEC
COMPRESSOR CYCLING ON AND OFF	3841
COMPRESSOR DOES NOT SHUT OFF	3841
FAUCET LEAKING	3811
POTABLE WATER PRESSURE INDICATOR ABNORMAL	3841
POTABLE WATER QUANTITY INDICATOR ABNORMAL	3813
WASTE PUMP FAIL LIGHT ABNORMAL	3831

M1 0000 38 4600

WATER/WASTE CONTENTS



LIGHT SWITCH ON/OFF

WASTE TANK
SERVICE PANEL

LIGHT SWITCH

PRESS

TO TEST

LAMP TEST SWITCH
ABNORMAL

WASTE TANK
SERVICE PANEL

LAMP TEST SWITCH

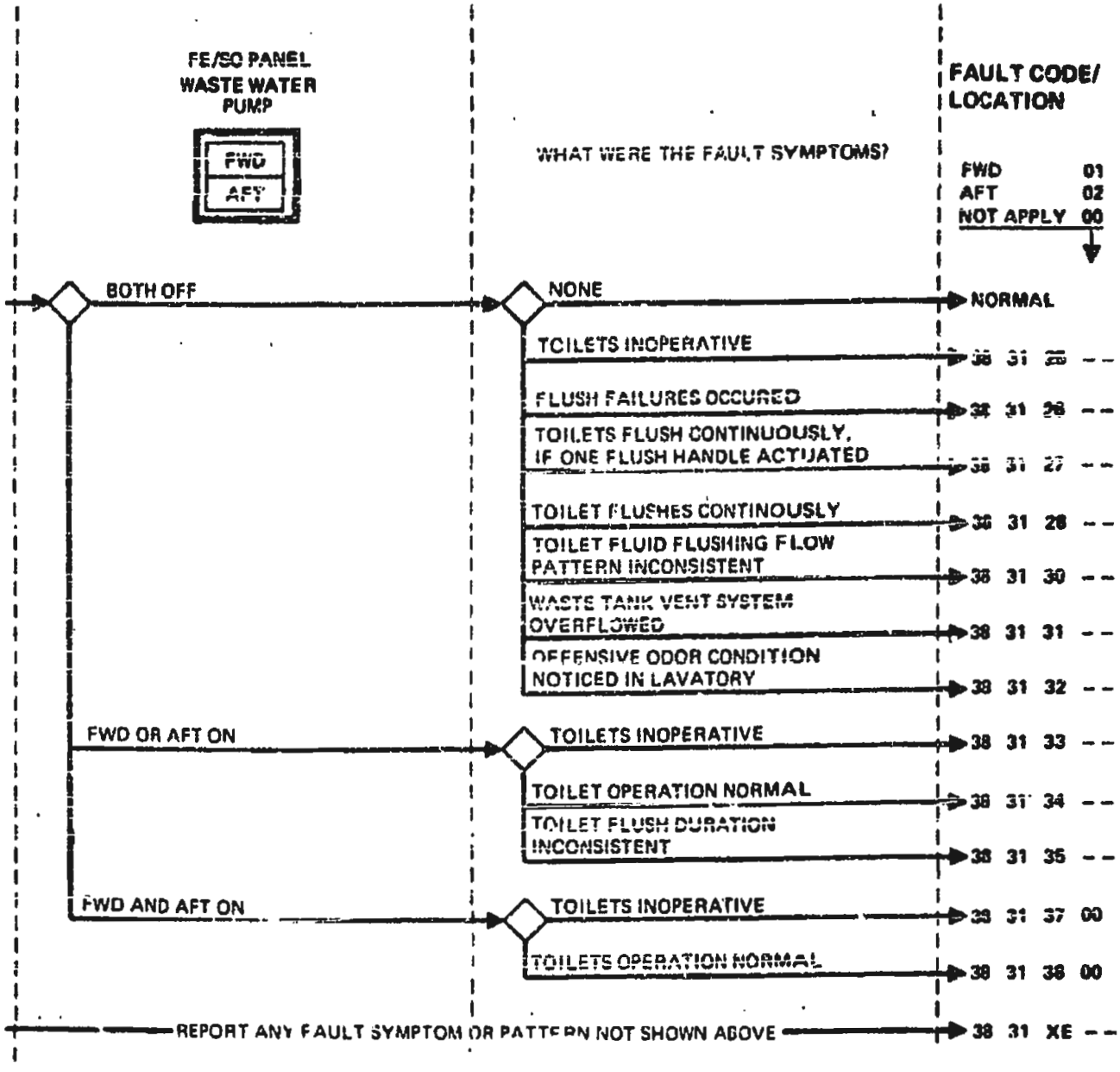
QUANTITY LIGHTS
ABNORMAL

WASTE TANK
SERVICE PANEL

QUANTITY LIGHTS

TITLE	CHAP/SEC
LIGHT SWITCH ON/OFF	3831
LAMP TEST SWITCH ABNORMAL	3831
QUANTITY LIGHTS ABNORMAL	3831

M1-0000-38-4601


FE/SC PANEL
WASTE WATER PUMP
FWD
AFT
WHAT WERE THE FAULT SYMPTOMS?
FAULT CODE/ LOCATION
FWD 01
AFT 02
NOT APPLY 00
BOTH OFF
NONE
NORMAL
TOILETS INOPERATIVE
FLUSH FAILURES OCCURED
TOILETS FLUSH CONTINUOUSLY, IF ONE FLUSH HANDLE ACTUATED
TOILET FLUSHES CONTINOUSLY
TOILET FLUID FLUSHING FLOW PATTERN INCONSISTENT
WASTE TANK VENT SYSTEM OVERFLOWED
OFFENSIVE ODOR CONDITION NOTICED IN LAVATORY
38 31 32 - -
FWD OR AFT ON
TOILETS INOPERATIVE
38 31 33 - -
TOILET OPERATION NORMAL
38 31 34 - -
TOILET FLUSH DURATION INCONSISTENT
38 31 35 - -
FWD AND AFT ON
TOILETS INOPERATIVE
TOILETS OPERATION NORMAL
38 31 38 00
REPORT ANY FAULT SYMPTOM OR PATTERN NOT SHOWN ABOVE
38 31 XE - -
APPLICABLE CIRCUIT BREAKERS
283 FWD LAV FLUSH PUMP 1
286 FWD LAV FLUSH PUMP 2
289 FWD LAV FLUSH PUMP 3
GALLEY RIGHT CB PANEL
5B AFT LAV FLUSH PUMP 3
8B AFT LAV FLUSH PUMP 2
11B AFT LAV FLUSH PUMP 1

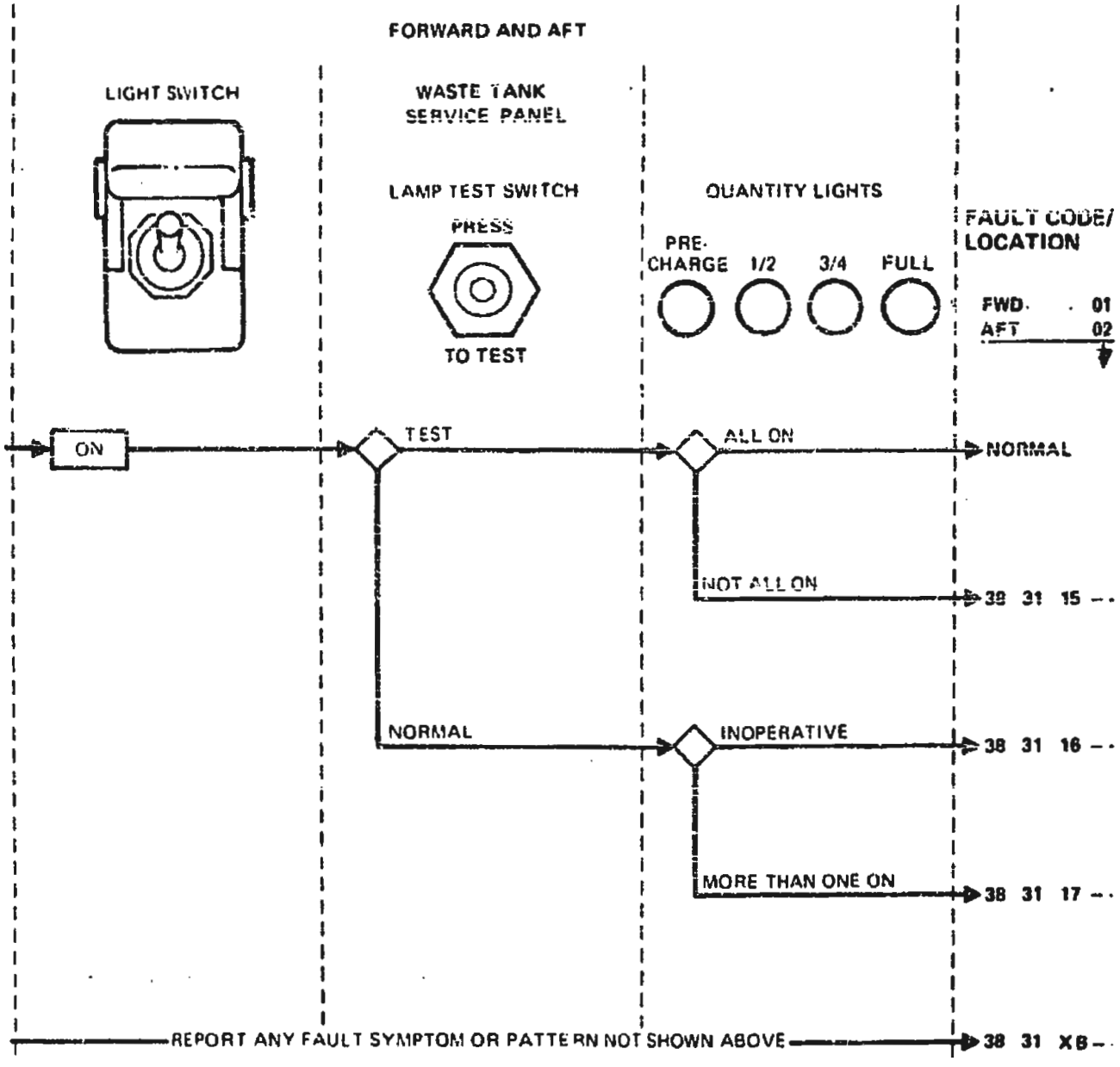
ED1-0006-38-001

R Forward and Aft Waste System Operation - Fault Codes
Figure 1

EFFECTIVITY: ALL

0508

38-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

263	FWD LAV FLUSH PUMP 1
286	FWD LAV FLUSH PUMP 2
289	FWD LAV FLUSH PUMP 3

GALLEY RIGHT CIRCUIT BREAKER PANEL

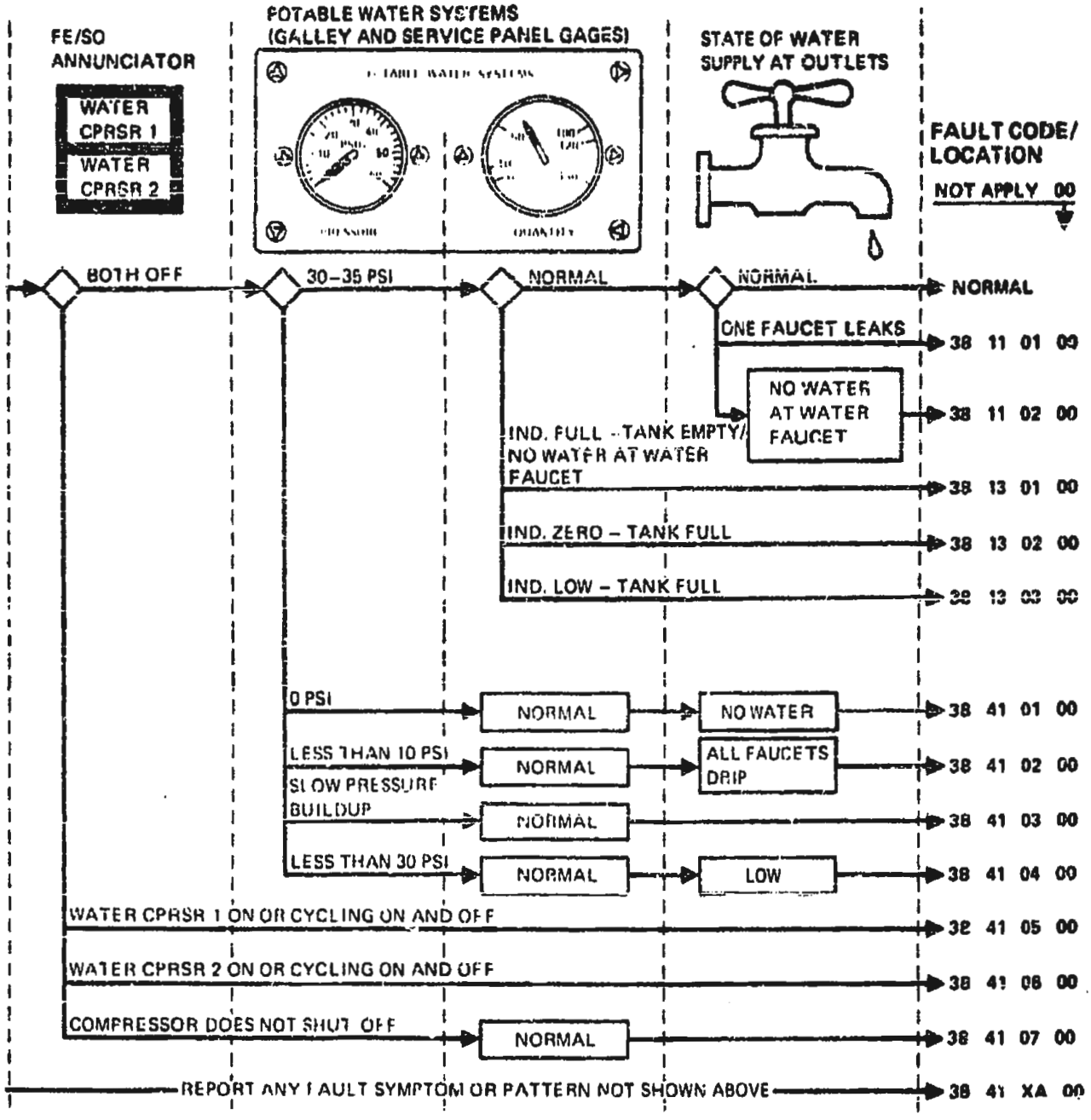
R58	AFT LAV FLUSH PUMP 3
R88	AFT LAV FLUSH PUMP 2
R118	AFT LAV FLUSH PUMP 1

CD1 0001-38 004

R Waste System Level Indications - Fault Codes
Figure 2

R EFFECTIVITY: ALL

38-FAULT CODE DIAGRAM



APPLICABLE CIRCUIT BREAKERS

GALLEY LEFT CIRCUIT BREAKER PANEL		GALLEY RIGHT CIRCUIT BREAKER PANEL	
L20G	WATER SERV PNL	R1B	QTY/PRESS IND
	OR	R2G	PRESSURIZATION 1
L20G	WATER SERV PNL AND PRESS 1	R5G	PRESSURIZATION 2
L20H	WATER PRESS 2		

ED1-0007-38-005

R Potable Water System - Fault Codes
Figure 3

R EFFECTIVITY: ALL

R 050B

38-FAULT CODE DIAGRAM

FAULT CODE INDEX
TABLE 1

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 31 XB __	1. A Waste System Level Indications fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.) 2. 38-31-00 Fig. 103, 104, 105, 106, 107, 108, 109, 110 Block 1
38 31 XE __	1. A Forward and Aft Waste System Operation fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.) 2. 38-31-00 Fig. 103, 104, 105, 106, 107, 108, 109, 110 Block 1
38 41 XA 00	1. A Potable Water System fault was encountered by the crew which is not covered in the fault code diagram. (Ref. Fault Code diagram for flight crew actions.)
R R	2. 38-41-00 Fig. 103, 104, 105, 106, 107, 108, 109, 110 Block 1
38 11 01 00	1. One water faucet leaks (give location), both WATER CPRSR 1 and 2 lights OFF, pressure gage in range, quantity gage normal. 2. 38-11-00 Fig. 103 Block 1
38 11 02 00	1. No water at water faucet (give location), pressure gage in range, quantity gage normal. 2. 38-11-00 Fig. 103 Block 1

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 13 01 00	1. Potable water systems quantity gage indicates full, tank empty, both WATER CPRSR 1 & 2 lights OFF, pressure gage in range, no water at water faucet.
	2. 38-13-00 Fig. 103 Block 2
38 13 02 00	1. Potable water systems quantity gage indicates zero, tank full, both WATER CPRSR 1 & 2 lights OFF, pressure gage in range, faucet operation normal.
	2. 38-13-00 Fig. 103 Block 2
38 13 03 00	1. Potable water systems quantity gage indicates low, tank full, both WATER CPRSR 1 & 2 lights OFF, pressure in range, faucet operation normal.
	2. 38-13-00 Fig. 103 Block 2
38 31 01 00	1. NOT USED.
38 31 02 00	1. NOT USED.
38 31 03 00	1. NOT USED.
38 31 04 00	1. NOT USED.
38 31 05 00	1. NOT USED.
38 31 06 00	1. NOT USED.
38 31 07 00	1. NOT USED.
38 31 08 00	1. NOT USED.
38 31 09 00	1. NOT USED.
38 31 10 00	1. NOT USED.
38 31 11 00	1. NOT USED.
38 31 12 00	1. NOT USED.

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 31 13 00	1. NOT USED.
38 31 14 00	1. NOT USED.
38 31 15 __	1. (01=Fwd Sys, 02=Aft Sys) all waste system level indicator lights do not test. 2. 38-31-00 Fig. 109 Block 1
38 31 16 __	1. (01=Fwd Sys, 02=Aft Sys) no waste system level indication. 2. 38-31-00 Fig. 109 Block 1
38 31 17 __	1. (01=Fwd Sys, 02=Aft Sys) two or more level indications shown on waste tank service panel. 2. 38-31-00 Fig. 109 Block 1
38 31 18 00	1. NOT USED.
38 31 19 00	1. NOT USED.
38 31 20 00	1. NOT USED.
38 31 21 00	1. NOT USED.
38 31 22 00	1. NOT USED.
38 31 23 00	1. NOT USED.
38 31 24 00	1. NOT USED.
38 31 25 __	1. (01=Forward System, 02=Aft System) toilets inoperative, waste fail light off. 2. 38-31-00 Fig. 105 Block 1
38 31 26 __	1. (01=Fwd Sys, 02=Aft Sys) Flush failures occur, waste pump fail off. 2. 38-31-00 Fig. 104 Block 2

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 31 27 __	1. (01=Fwd Sys, 02=Aft Sys) Toilets flush continuously, if one flush handle actuated. 2. 38-31-00 Fig. 104 Block 3
38 31 28 __	1. (01=Fwd Sys, 02=Aft Sys) Toilets flush continuously, waste pump fail light off. 2. 38-31-00 Fig. 107 Block 1
38 31 29 00	1. NOT USED.
38 31 30 __	1. (01=Fwd Sys, 02=Aft Sys) Toilet fluid flushing flow pattern inconsistent. 2. 38-31-00 Fig. 106 Block 1
38 31 31 __	1. (01=Fwd, 02=Aft) waste tank vent line overflow. 2. 38-31-00 Fig. 108 Block 1
38 31 32 __	1. (01=Fwd, 02=Aft) Offensive odor condition noticed in lavatory. 2. 38-31-00 Fig. 108 Block 1
38 31 33 __	1. (01=Fwd Sys, 02=Aft Sys) Toilets inoperative, FWD or AFT waste pump fail light on. 2. 38-31-00 Fig. 105 Block 1
38 31 34 __	1. (01=Fwd, 02=Aft) FWD or AFT waste pump fail light on, toilet operation normal. 2. 38-31-00 Fig. 103 Block 1
38 31 35 __	1. (01=Fwd, 02=Aft) Toilet flush duration inconsistent, FWD or AFT waste pump fail light on. 2. 38-31-00 Fig. 104 Block 1
38 31 36 00	1. NOT USED.

FAULT CODE INDEX
TABLE 1 (CONTINUED)

FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 31 37 00	1. Both waste pump fail lights on. Toilets inoperative. 2. 38-31-00 Fig. 103 Block 1
38 31 38 00	1. Both waste pump fail lights on. Toilet operation normal. 2. 38-31-00 Fig. 103 Block 2
38 41 01 00	1. Potable water air pressure zero, no water at any outlet, water quantity gage normal. 2. 38-41-00 Fig. 103 Block 3
38 41 02 00	1. Potable water air pressure less than 10 psi, all faucets drip, water quantity gage normal. 2. 38-41-00 Fig. 103 Block 3
38 41 03 00	1. Potable water air pressure slow to build up, water quantity gage normal, all faucet drip. 2. 38-41-00 Fig. 103 Block 3
38 41 04 00	1. Potable water pressure indicates low (____psi). Quantity normal; low flow at faucets. 2. 38-41-00 Fig. 105 Block 1
38 41 05 00	1. WATER CPRSR 1 fail light on (cycles on and off). 2. 38-41-00 Fig. 104 Block 1
38 41 06 00	1. WATER CPRSR 2 fail light on (cycles on and off). 2. 38-41-00 Fig. 104 Block 1

FAULT CODE INDEX
TABLE 1

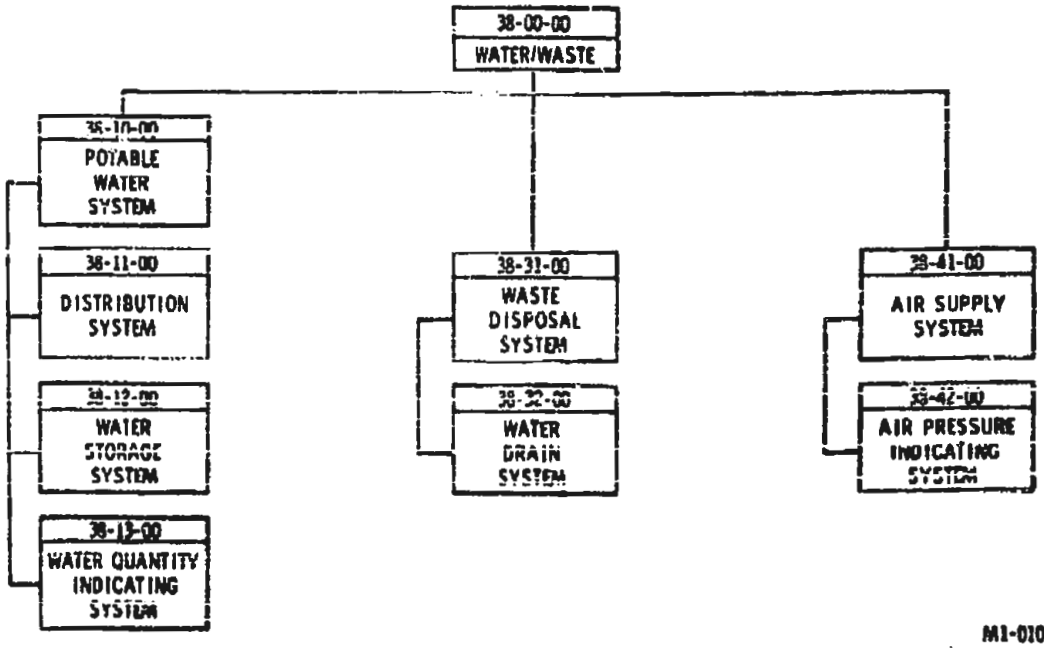
FAULT CODE	1. LOG BOOK REPORT 2. FAULT ISOLATION REFERENCE
38 41 07 00	1. Potable water air compressor(s) fail to shut off. Water quantity normal. 2. 38-41-00 Fig. 105 Block 1

WATER/WASTE
DESCRIPTION AND OPERATION

1. General

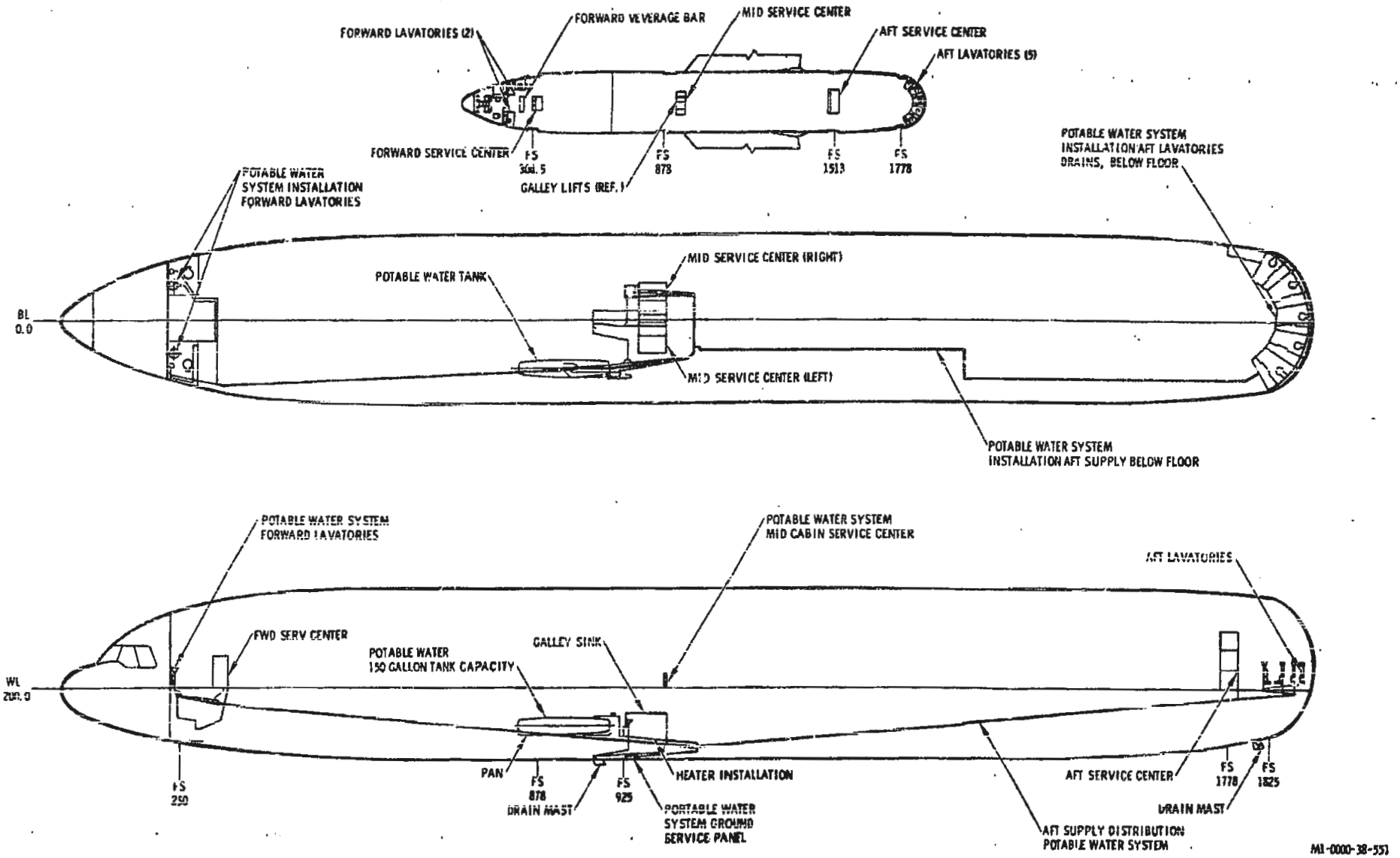
The water/waste system supplies potable water to the galley, buffet, lavoratory equipment, and processes waste products from the lavatories (Ref. Fig. 1 and 2). The Water/Waste System Components are located in heated areas or protected by heating elements to prevent freezing.

Aircraft parked for a prolonged time, in subfreezing weather, with no electrical power applied should have the potable water and the waste systems drained to prevent possible damage by ice formation. Procedures for draining potable water and waste systems are contained in 38-11-00 and 12-15-11, respectively.



R Water/Waste Systems
R Figure 1

R EFFECTIVITY: ALL
R
001B



R
R

Water/Waste System Facilities
Figure 2

EFFECTIVITY: ALL

001B

POTABLE WATER SYSTEM - DESCRIPTION AND OPERATION

1. General

The potable water system contains the provisions required to store and distribute potable water to the drinking fountains, coffee makers, galley sink, beverage bar, mid and aft service center sinks and the forward and aft lavatory washbasins.

R The potable water system is divided into the following
R sub-systems:

Distribution System (Ref. 38-11-00)

Water Storage System (Ref. 38-12-00)

Water Quantity Indicating System (Ref. 38-13-00)

Water Drain System (Ref. 38-32-00)

Water is distributed to the various potable water outlets by air pressure; the tank is normally pressurized by two (dual) air compressors. Provisions for draining the system, servicing the tank, and pressurizing the tank using a ground source of compressed air, are provided on an externally accessible ground service panel. Water heaters, purifiers, and coolers are installed in appropriate water distribution lines. Water supply line shutoff and water tank emergency shutoff valves are accessible to the flight crew.

The Potable Water system components are located in heated areas or protected by heating elements to prevent freezing.

Aircraft parked for a prolonged time, in subfreezing weather, with no electrical power applied should have the potable water system drained to prevent possible damage by ice formation. Procedures for draining the potable water system is contained in 38-11-00.

Manual operation for bleeding off potable water tank pressure can be accomplished by opening the fill/overflow valve through an access panel in the galley, or by pulling remote control handle of fill/overflow valve in the potable water ground service panel.

POTABLE WATER DISTRIBUTION SYSTEM - DESCRIPTION AND OPERATION

1. General

The potable water distribution system (Ref. Fig. 1) includes the plumbing and components to perform the following:

CR Fill the potable water tank from a ground source

CR Supply water, at ambient temperature, to the galley sink, passenger cabin service centers, and lavatories washbasins.

Provide hot water to hot water faucets and cool water to drinking fountains.

Isolate water supply to line maintenance components at time of service.

A potable water ground service panel access door is located just aft of the galley entry door. The system drain valve and the fill and overflow valve control handles are installed on the service panel. A water-tight cap on the water fill fitting permits panel access door to close only when the cap is securely attached to the fitting.

All water lines in the distribution system are made of corrosion-resistant steel, titanium, monel, or flexible hose assemblies.

The Potable Water System Components are located in heated areas or protected by heating elements to prevent freezing. Aircraft parked for a prolonged time in subfreezing weather with no power applied should have the Potable Water System drained to prevent possible damage by ice formation.

All components of the distribution system are mechanical and/or mechanically operated except the drinking water cooler and the water heaters which are electrically operated.

2. Operation

At the ground service panel, the potable water is supplied under pressure from a ground source.

The potable water ground source hose is connected to the potable water fill connection.

Potable water is routed to the fill/overflow valve, water supply line, water supply shutoff valve, and to the potable water tank.

The fill/overflow valve is actuated by a remote control handle located on the ground service panel. This arrangement provides tank fill and overflow monitoring at a single point.

The potable water tank contains approximately 100 US gallons.

The tank is pressurized with air to force water to various using outlets (Ref. 38-41-00). Normal system operating pressure is 30 to 35 psig. The flow rates are:

Each lavatory washbasin faucet provides a minimum flow rate of 1 US (0.83 Imperial) gallon per minute.

Each drinking fountain provides a minimum flow rate of 32 ounces per minute.

Water can be supplied simultaneously to coffee makers with minimum flow rate of 30 ounces (0.887 liters).

The galley and/or service center water faucet provides a minimum flow rate of 1 U.S. (0.83 Imperial) gallon per minute.

NOTE: The system can satisfy the first three operations simultaneously.

When the water system head pressure is 9-11 psig, the faucet valve closes automatically. The valve remains closed against a cabin ambient air pressure of 10 psig or more. At normal system pressure, faucet flow rate remains constant when one or more faucets are open at the same time.

The lavatory washbasin and the galley sink drain valve is spring-loaded in the closed position. The drain valve assembly and faucet assembly are interconnected by an actuator rod and spring. The drain actuator is located on top of the faucet assembly. The drain valve is opened whenever the drain actuator is depressed downward.

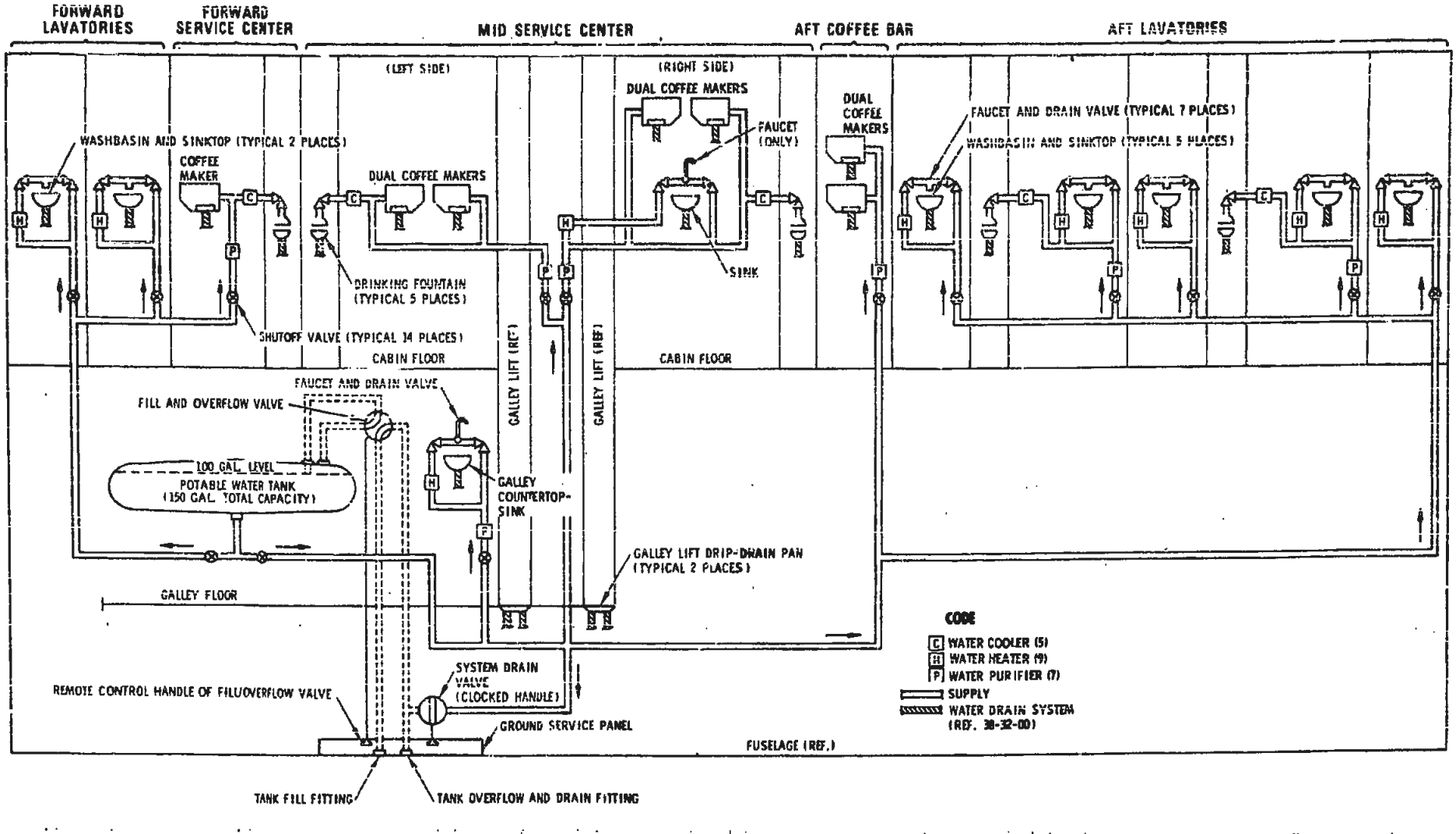
3. Thermoelectric Drinking Water Cooler

A. Description

The water cooler is installed close to each of the drinking fountains on the aircraft (Ref. Fig. 1). Each cooler is mounted vertically on a rigid panel (Ref. Fig. 2).

The mechanical components of the cooler are:

Two disposable air filters



M1-3000-38-537

CR
CR

Distribution System Schematic
Figure 1

EFFECTIVITY: ALL

001B

Blower fan

Finned tank.

The electrical components of the cooler are:

Twelve-pin connector

Slow-blowing fuses

Fan motor

Transformer

Rectifiers

Thermostats

Thermal-electric cells

Pilot light

C Relays

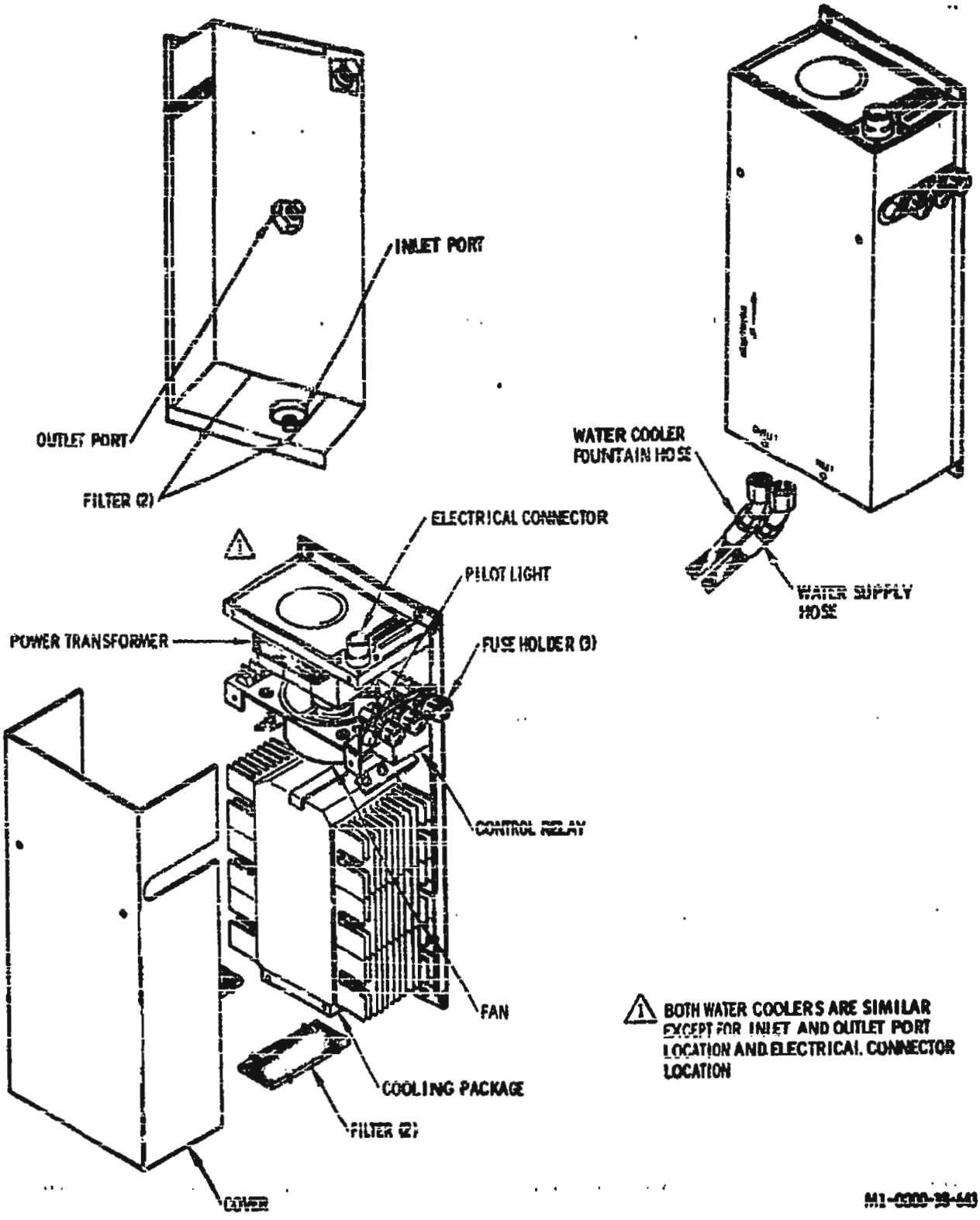
The thermal electric cells are two dissimilar metal elements separated by a silicon derivative. One element is copper and the other is stainless steel.

The components of the water cooler are housed in a rectangular metal cover. All metals used in the cooler are corrosion-resistant. The cooler operates on 115V ac, 400 Hz, 3-phase electrical power supplied through the galley circuit breaker panel, zone 137 (Ref. Fig. 3). A slow-blowing fuse is installed in each leg of the three-phase input. The overheat thermostat opens the power circuit when the safe operating temperature is exceeded and resets automatically when theThe green pilot light is on when the cooler is operating.

C The control thermostat cycles the cooler and fan on and off
C as required to maintain water temperature.

There are two models of this cooler used in the aircraft. Functionally, the models are identical. Physically they are the same except for the location of the outlet port. The cooler used in the forward service center has the outlet port on the side of the unit. The other coolers have both ports on the bottom of the unit.

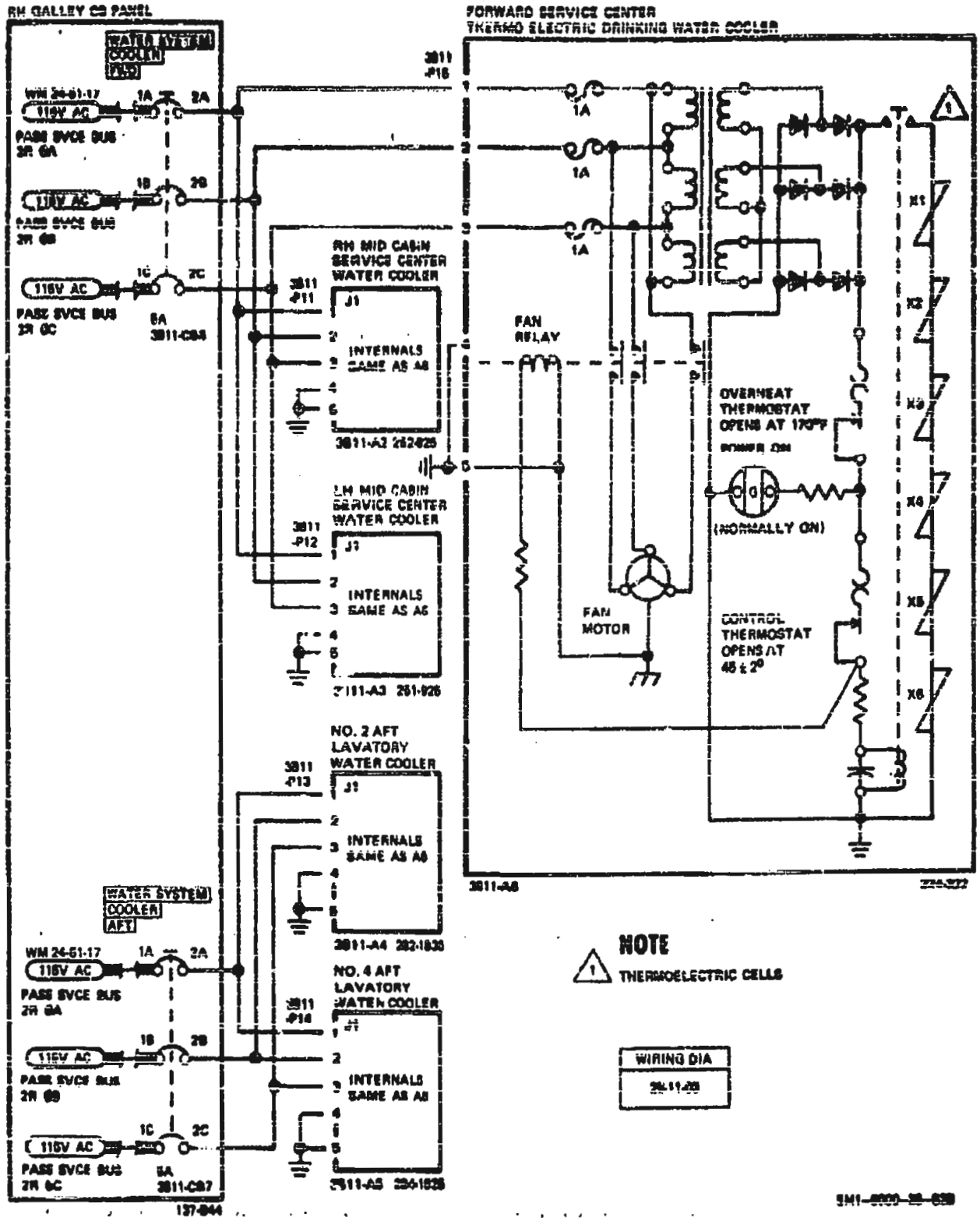
B. Operation



M1-0000-38-440

R
R

Water Cooler
Figure 2



C Water Cooler Electrical Schematic
C Figure 3

EFFECTIVITY: ALL

A cooler is filled by supplying water to the inlet port and opening the drinking fountain faucet to release entrapped air. The unit is full when water runs freely from the faucet.

C During operation, cooling air is drawn through the unit, by
C the enclosed fan, and exhausted through the top of the cooler. This air maintains cooler temperature within the safe operating range.

The power load is 240 VA during the initial cool-down period. Thereafter, 54 VA is required to maintain an outlet water temperature of 52 degrees F. After initial cool-down, the cooler can supply three ounces of water at 52 degrees F every two minutes. The unit operates efficiently under the following conditions:

Ambient air temperature of 60 to 90 degrees F

Supply water temperature of 50 to 70 degrees F

Supply water pressure of up to 125 psig (normal pressure 35 psig)

Cabin air pressure equivalent to ambient air pressure at 8000 feet altitude

The cooler is drained by disconnecting the water supply line from the inlet port and opening the drinking fountain faucet.

4. Drinking Fountain Assembly

A. Description

There are five drinking fountain assemblies in the passenger compartment (Ref. Fig. 1). Each assembly includes a pan, a rubber grommet, a spigot assembly, and a drain plate. (Ref. Fig. 3).

The pan is a weldment made of corrosion-resistant steel. The rubber grommet fits a 2.50-inch-diameter hole in the top of the pan. The spigot assembly is mounted in the center of the back surface of this pan. The bottom of the pan accommodates the drain plate. Provisions for attaching the water drain line are included below the plate.

The spigot is self-venting, self-draining and self-priming. The materials which are in contact with the water are noncorrosive, nonabsorbent, and nontoxic.

The drain plate is made of corrosion-resistant steel and is easily removed for cleaning.

B. Operation

A potable water supply line is attached to the fitting on the spigot. The valve in the spigot closes at a minimum water pressure of 9-11 psig and remains closed at a cabin air pressure of 10 psig or more. The spigot provides water at a minimum flow rate of 32 fluid ounces per minute.

A cup dispenser (Ref. 25-34-00) is mounted above the drinking fountain. The cups protrude through the rubber grommet on the upper surface of the drinking fountain pan.

5. Water Heater

A. Description

There is a water heater installed in the supply line to the hot water tap of each washbasin and sink spigot (Ref. Fig. 1).

The mechanical components of the water heater are:

Heater body

Electrical component housing

Inlet fitting

Outlet fitting

Relief valve

Mixing tube assembly

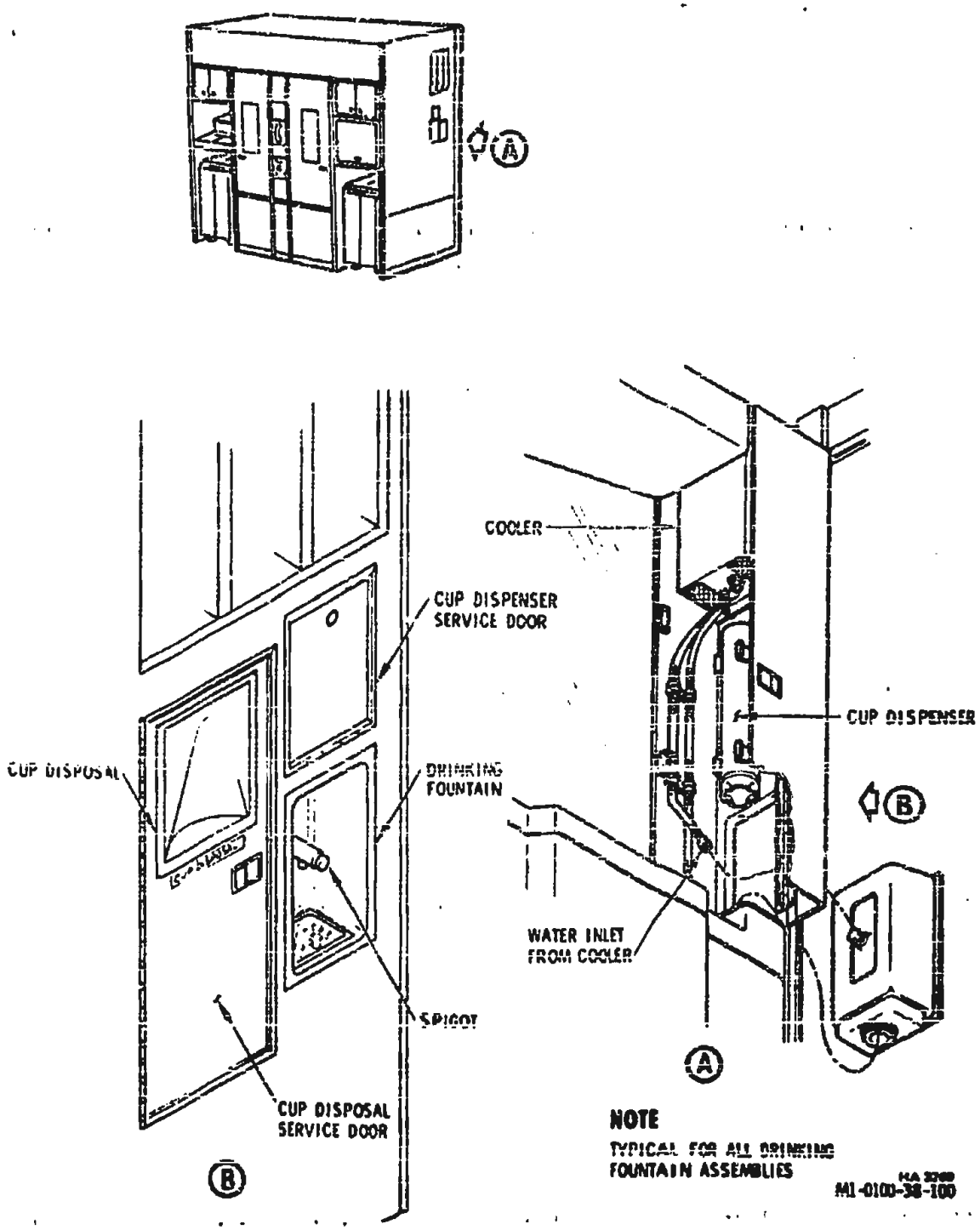
Upper cover

Lower cover

The first six items are made of stainless steel, and the upper and lower covers are made of aluminum alloy.

The ends of the cylindrical heater body are closed with flat caps welded to the walls. A threaded bolt is welded to the center of the top cap (Ref. Fig. 4)

The electrical component housing is a cylinder with open ends. The diameter is the same as the body.



C
CR

Drinking Fountain
Figure 4

The inlet fitting is installed in the bottom cap of the body and extends down beyond the lower cover.

The outlet fitting is welded in the wall of the body.

The relief valve is installed in a port in the wall of the body.

The mixing tube assembly is installed inside the body with the end extending down into the inlet fitting. The electrical component housing is installed on top of the body.

The upper aluminum cover is secured over the top of the electrical component housing. The lower cover has a hole for the inlet fitting.

The electrical components of the water heater are:

Three immersion heaters

Thermoswitch

Indicator light

Overheat switch (manual reset)

DPDT toggle switch

Power cord

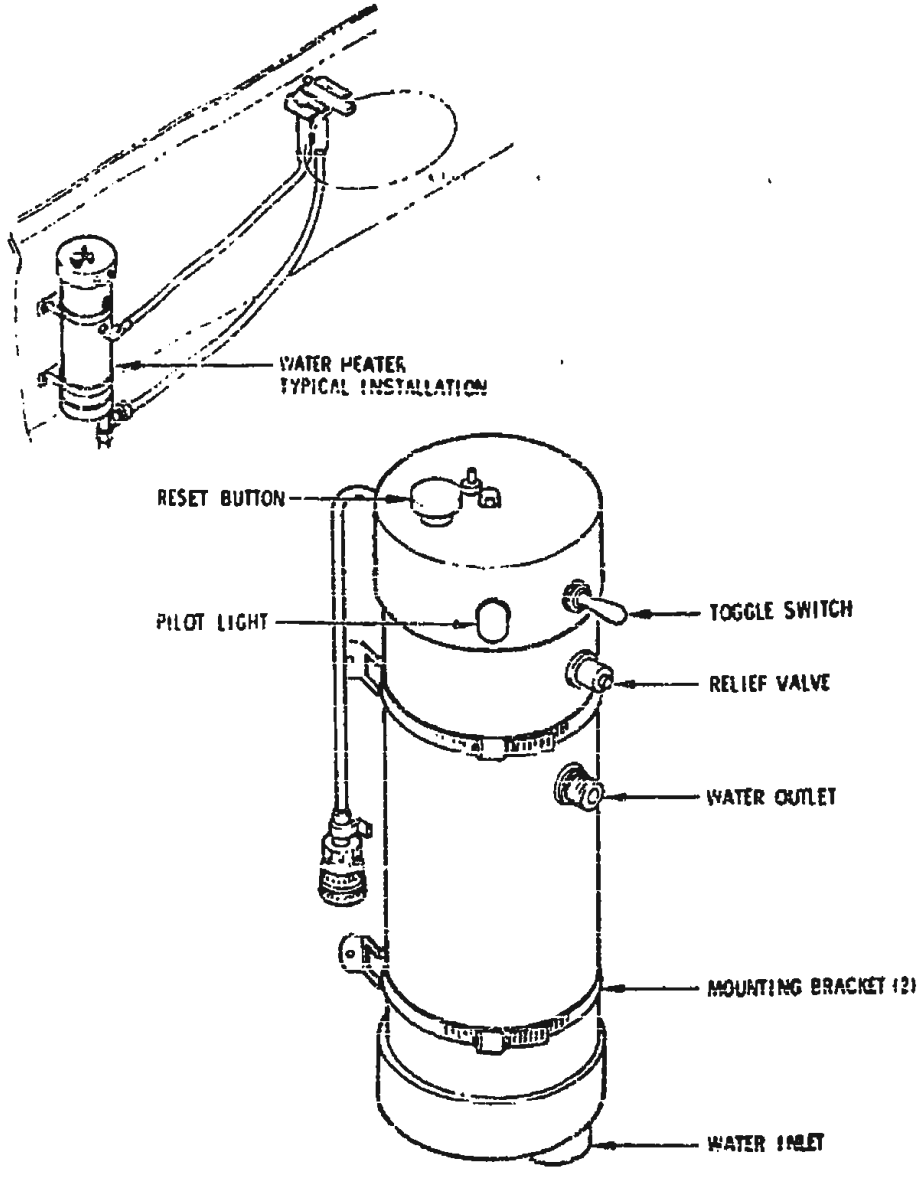
The three immersion heaters and the thermoswitch are installed inside the heater body. The indicator light, overheat switch, and toggle switch are mounted on the wall of the electrical component housing.

The power cord is a three-conductor rubber covered cable. The free end of the power cord passes through a hole in the wall of the electrical component housing. All electrical connections are inside the housing.

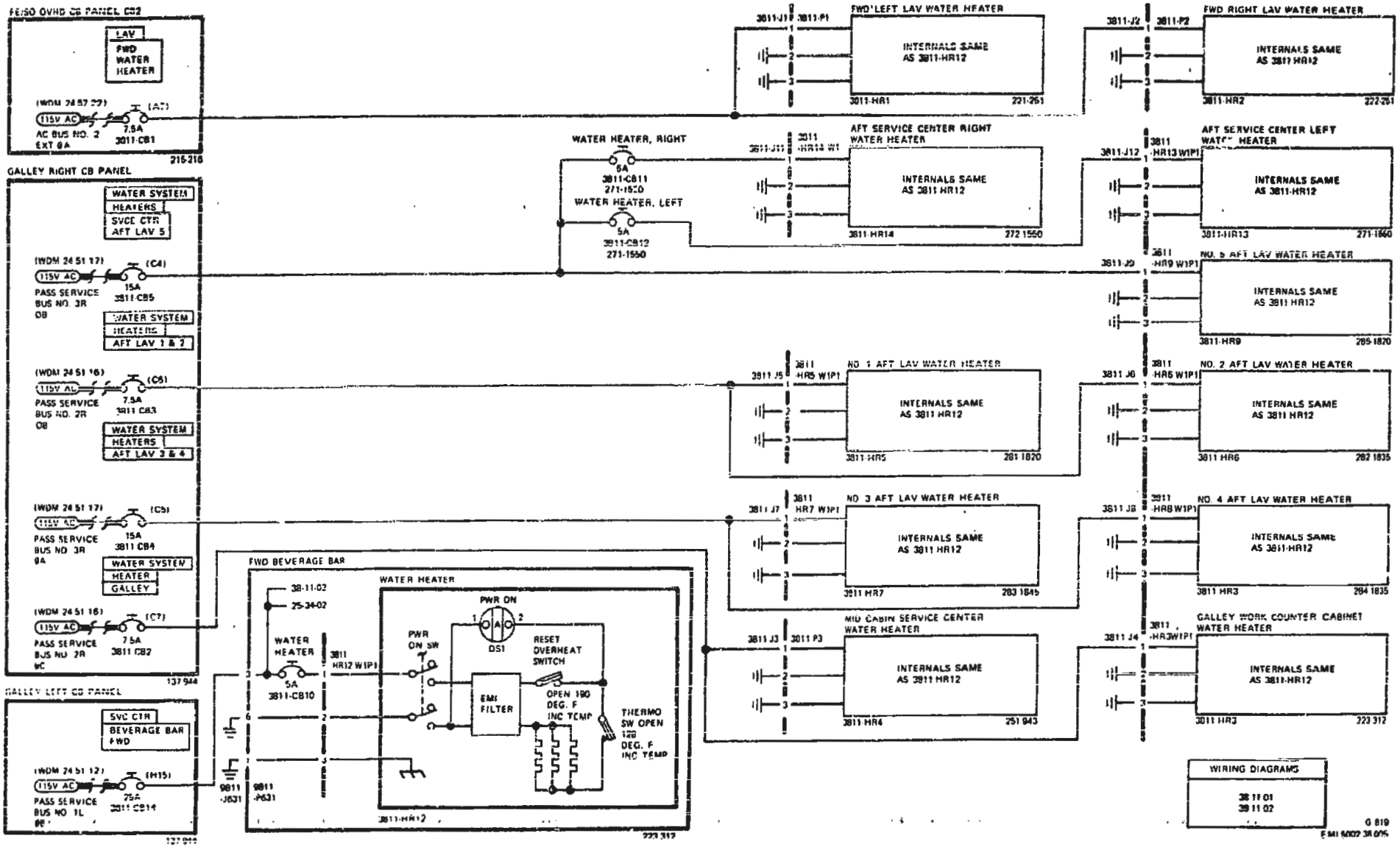
The water heater is a self-priming, self-venting, and self-draining assembly with a nominal capacity of 100 cubic inches (1.73 quarts). The heaters are installed vertically in the supply lines.

B. Operation

The water heater operates on 115V ac, 400 Hz, single-phase power. Power is supplied through circuit breakers on the flight compartment and galley circuit breaker panels.



Water Heater
Figure 5



Water Heater Electrical Schematic
Figure 6

C
CR

EFFECTIVITY: ALL

0018

The forward Lavatory Water heaters receives power from Pilot overhead circuit breaker CB2. All other water heaters receive power from the galley circuit breaker panel.

The maximum power required for each water heater is 420 watts. The toggle switch is used to turn off power when required for maintenance functions. The overheat switch actuates at 190 degrees F. This switch must be manually reset to restore power. The water heater flow rate is 1.2 gallons per minute. The output water temperature is maintained at 105 to 128 degrees F. The heater is capable of providing one pint of heated water every three minutes. The normally on indicator light provides a visual check to verify heater operation. The thermoswitch is set to cut off power at a maximum water temperature of 128 degrees F. In the event of overheat condition, the thermostat (overheat switch) will open at 183-197 to cut off power to the heater. The relief valve is set to relieve water pressure at 130-140 psig. The mixing tube (chamber) assures that splattering will not occur when water is drawn after the water heater is filled.

6. Manual Shutoff Valve

A. Description and Operation

Manual shutoff valves are installed in the supply line of each using facility in the potable water system (Ref. Fig. 1).

The in-line valve has a standard three-eighth-inch male fitting at each end. The valve shaft extends through the top of the valve body. An offset handle is attached to the valve shaft. Stops on the valve body limit handle travel to 90 degrees. The valve is in the open position when the handle is aligned with the valve.

The valve can withstand repeated freezing without damage.

R 7. Lavatory Water Faucet and Drain Valve Assembly

A. Description and Operation

The faucet assembly and drain valve assembly are interconnected by an actuator rod and spring. The faucet assembly consists of two water faucet valves, hot and cold. The water valves are spring loaded in the closed position (Ref. Fig. 5). The valves may be disassembled from above the sink without removing the valve housing. The faucet is self-venting, self-draining, and self-priming.

The drain valve assembly consists of:

Body

Valve poppet

Pushrod lever and linkage

Spring

Gasket

Screen

The drain valve assembly is screwed into the drain hole of the washbasin. The drain actuator extends down through a hole at the rear of the faucet housing and connects to the actuator arm. The spring connects between the actuator arm and the faucet housing to spring-load the valve in the closed position. The valve poppet is slotted to serve as a strainer. The lower end of the drain valve assembly is machined as a standard 1-inch male fitting. The drain line attaches to this fitting. The faucet assembly and drain valve assembly can withstand repeated freezing without damage.

R 8. Galley and Mid Cabin Water Faucet Assembly

R A. Description

R The galley faucet and drain assembly is similar in operation
R to the lavatory faucet and drain assembly. The mid-cabin
R faucet assembly does not have a drain valve assembly. Both
R faucet assemblies have a curved swivel spout with an aerator
R to prevent splashing (Ref. Fig. 5).

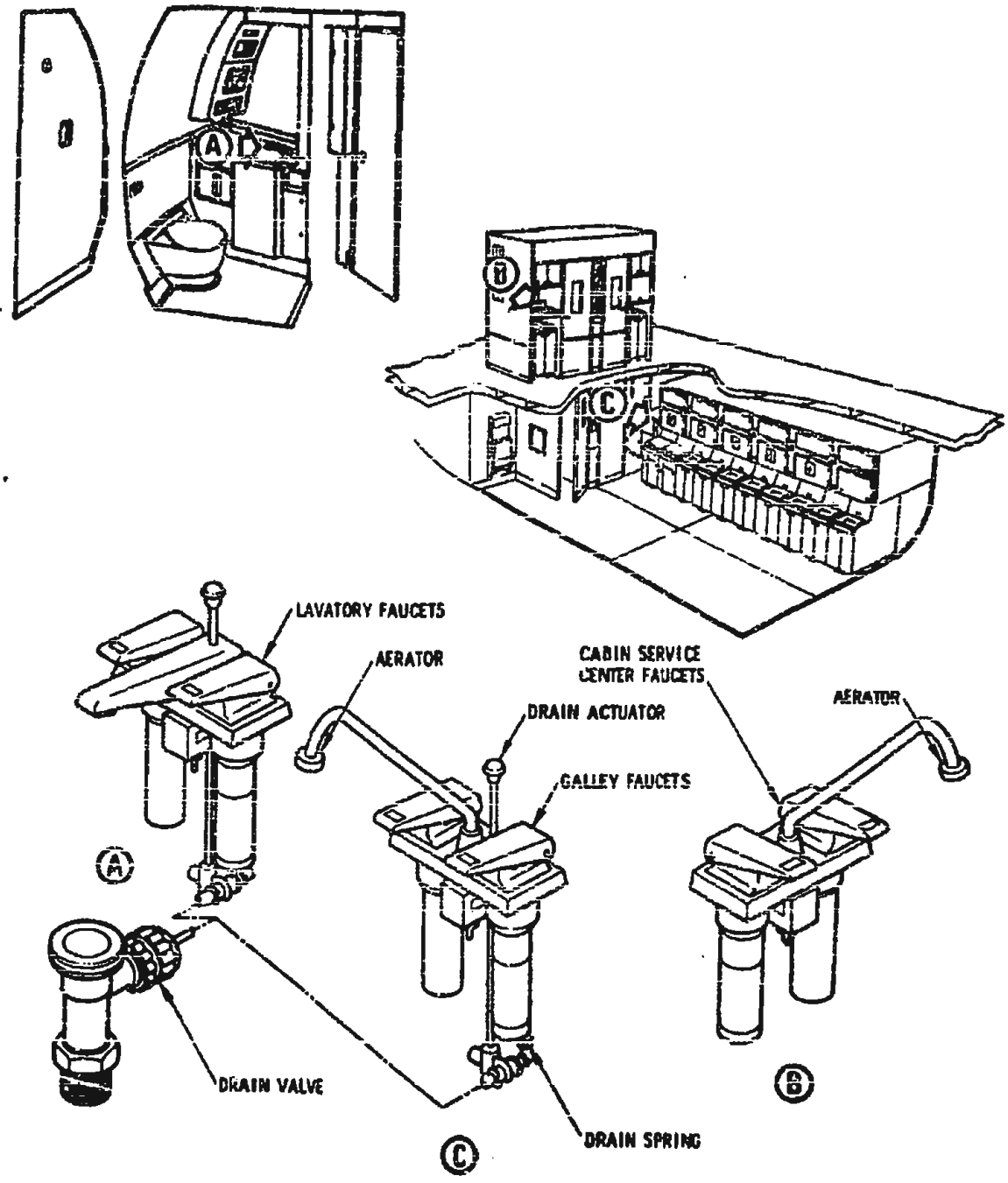
9. Coffee Maker Water Supply Line Fitting Half

A. Description

R The water supply line for each coffee maker has a quick disconnect fitting half. This fitting half mates with the fitting half of the coffee maker.

10. Tank Fill Fitting

A. Description



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C
CR

Water Faucets and Drain Valves
Figure 7

The tank fill fitting is an assembly designed for three-quarter-inch tube. The assembly consists of an adapter assembly, a nipple, a filter, and a Buna-N O-ring. The adapter assembly and nipple are corrosion-resistant steel. The filter is 10-mesh monel cloth. The adapter assembly is a flat plate welded to the female end of a 45-degree elbow. Four floating clinch nuts are attached to the plate. The fitting assembly, with the male fitting of the elbow facing inboard, is attached to the inner surface of ground service panel, zone 136. The nipple threads into the adapter and the exposed end mates with the Roylyn fitting on the ground service equipment.

11. Tank Overflow and Drain Fitting

A. Description

The tank overflow and drain fitting is an assembly designed for 1-1/4 inch tube. The differences between the tank fill fitting and this fitting assembly are: size and omission of a filter.

The assembly is installed adjacent to the tank fill fitting on the ground service panel, zone 136. The tubing from the overflow port of the fill and overflow valve connects to this fitting.

12. Fill and Overflow Valve

A. Description

The fill and overflow valve is a two-position, four-way, manually operated ball valve.

The body, ports and shaft are made of corrosion-resistant steel. The ball and seals are made of nontoxic material.

The valve body is square with an integral male fitting extending from each side. The ports are numbered clockwise around the four sides of the body. Ports one and two are standard 1-inch fittings. Ports three and four are three-quarter-inch fittings. The body has stops which limit the shaft travel to 90 degrees. The shaft is a rod with a keyway slot. It extends approximately 2 inches beyond the surface of the valve body. The handle has a matching keyway slot. A key in the slot ensures positive turning of the shaft. The handle is secured to the shaft with a retaining ring.

The valve is installed in the left side compartment of the galley above the potable water tank, zone 133. A push-pull cable attached to the handle permits remote operation from the potable water ground service panel, zone 136. Emergency operation of the fill-overflow valve during flight is possible without the use of tools. The valve is easily accessible through a service panel in the galley.

B. Operation

Placing the valve in position 1 (fill position) interconnects ports one and two, and interconnects ports three and four. This position allows passage of water from the fill fitting on the ground service panel into the potable water tank. Air displaced during tank filling passes through ports three and four and out the overflow fitting in the service panel. When the tank is full, overflow water also follows this path. Placing the valve in the number two (off) position interconnects ports two and three, and interconnects ports one and four. Since the lines of ports two and three end at the potable water tank, the fill and overflow ports of the tank are sealed to permit pressurization of the system.

13. Water Purifier Assembly

A. Description

The purifier assemblies dechlorinate and filter the potable water at each of the water using components on the aircraft (Ref. Fig. 1). Each purifier consists of a manifold assembly and a replaceable cartridge assembly.

The manifold assembly is panel mounted. The assembly includes a ball-check valve and a selector valve. The inlet port is on the bottom surface of the manifold, and the outlet port is on the front side of the manifold. Passages in the manifold lead to and return from the cartridge assembly.

C On aircraft 11001 thru 31031,
C the selector valve handle is turned to BYPASS CLOSED to
C route water through the cartridge or to the BYPASS OPEN
C position to bypass the cartridge.

C On all other aircraft,
C the selector valve handle is set to CLOSED position to route
C water through the cartridge and to the BYPASS position to
C bypass the cartridge.

The selector valve is made of teflon, and the handle is made of nylon. The ball-check valve is made of Buna-N silicone rubber. The valve is installed in a bypass passageway between the inlet and outlet ports.

The cartridge assembly is mounted on the top surface of the manifold assembly and consists of:

Dome-top nylon case

Polypropylene center tube

Purifier element

Three stainless steel springs

Two Buna-N silicone rubber check valves

Polypropylene element retaining plate

Buna-N rubber seal for center tube

Polypropylene cup

The polypropylene cup is held in place by a stainless steel spring. The dome of the case is packed with polyurethane foam. The two Buna N O-rings are seals between the inlet and outlet interfaces of the cartridge assembly and the manifold.

B. Operation

Water enters the purifier through the bottom (inlet) port of the purifier manifold. With the selector valve set to the BYPASS CLOSED position on aircraft 11001-31031 or the CLOSED position on all other aircraft, water enters the filter cartridge through the outer cartridge valve. System pressure forces the water through the filter element and into the center tube. From there the water passes from the cartridge through the manifold outlet port to the using facility. Setting the selector valve to the BYPASS position blocks the inlet and outlet ports of the cartridge assembly, and water then flows directly to the using facility. When the cartridge assembly is installed on the purifier manifold, the cartridge ball-check valves are automatically unseated from the ports. The cartridge assembly ports are automatically closed as the cartridge is lifted from the manifold. Spring pressure seats the ball check valves, thereby sealing the ports.

POTABLE WATER DISTRIBUTION SYSTEM - FAULT ISOLATION

1. General

The fault isolation diagrams in this section can be used for fault isolation any time a fault is reported or suspected. Before fault isolation is started, the PREPREQUISITES listed on the diagram must be fulfilled.

If the flight crew reports a trouble using a FIRM Fault Code number, the number can be found in the FIRM Fault Code Cross Reference Table in the Chapter 38-INDEX.

The FIRM Fault Code Cross Reference Table includes the flight report (fault symptoms) and the exact Section, Figure, Sheet, and Block number where fault isolation should begin. (Refer to the L-1011 Maintenance Manual Introduction for a more detailed explanation on the use of fault isolation diagrams.)

If a fault is reported or suspected and no FIRM Fault Code is available, the function or fault indication can be found in the table below. When a diagram is selected in this manner fault isolation is started at Block 1.

2. Fault Isolation/Identification

Table 101 is a list of all fault isolation procedures and schematics. Figure 101 is a component location index and Figure 102 is a locator diagram for potable water distribution system components.

Potable Water Distribution System Fault Isolation
Table 101

	FIGURE	TITLE
	103	Potable Water Faucet Fault Isolation
	104	Potable Water Cooler Fault Isolation
	105	Potable Water Heater Temperature Control Fail
	SCHEM 1	Potable Water Cooler Electrical Schematic
R	SCHEM 2	Water Heater Electrical Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
WATER FAUCETS	7	ONE IN EACH LAVATORY	38-11-06
	2.	ONE MID CABIN RIGHT SERVICE CENTER	38-11-13
		ONE LOWER GALLEY	38-11-12
WATER COOLERS	5	ONE FORWARD SERVICE CENTER	38-11-01
		TWO MID CABIN SERVICE CENTER	38-11-01
		TWO NEAR 2 AND 4 LAVATORIES	38-11-01
WATER HEATERS	7	ONE IN EACH LAVATORY	38-11-04
	2	ONE MID CABIN RIGHT SERVICE CENTER	38-11-04
		ONE LOWER GALLEY WORK COUNTER	38-11-04

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RR

Component Location Index
Figure 101

EFFECTIVITY: ALL

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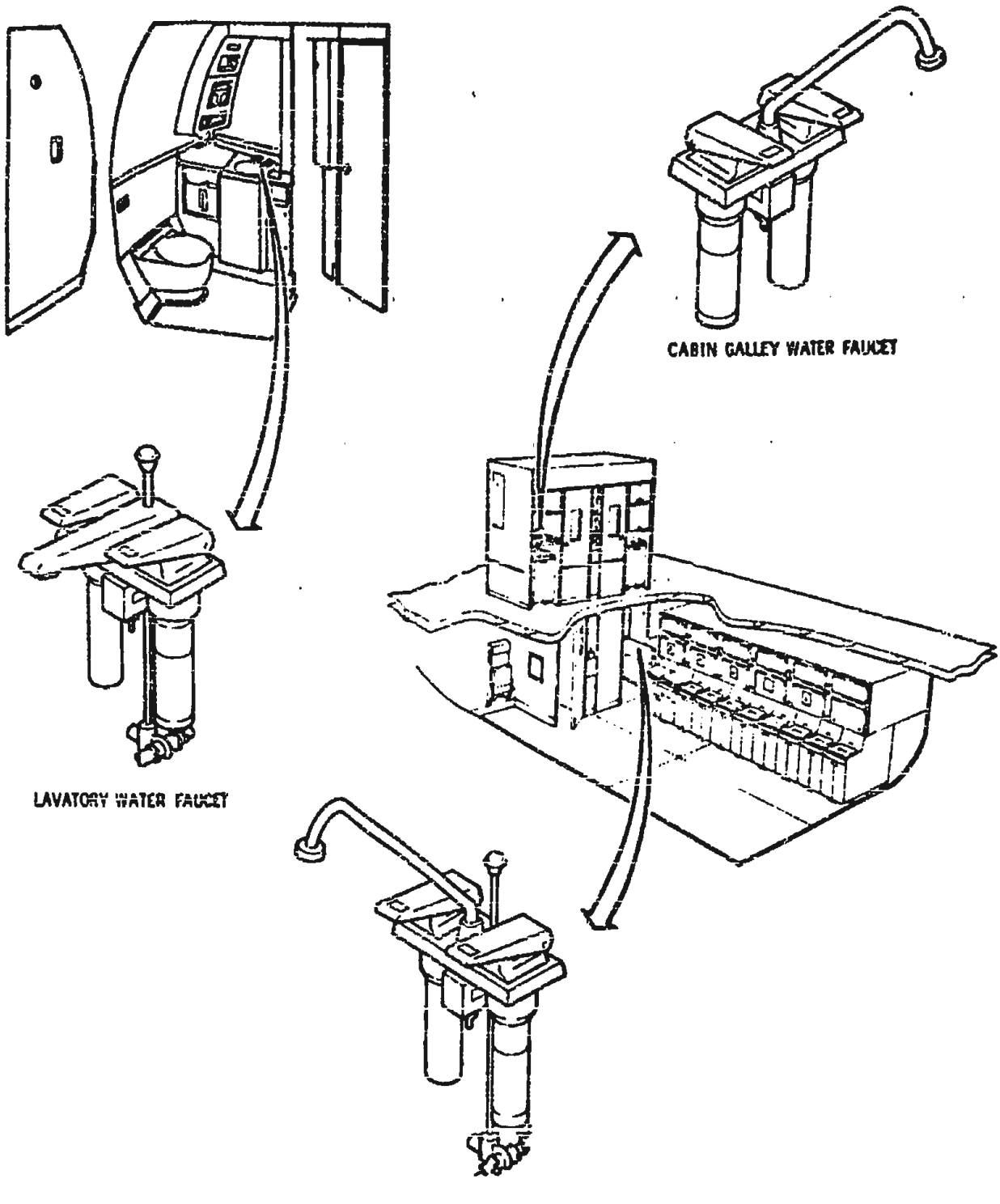

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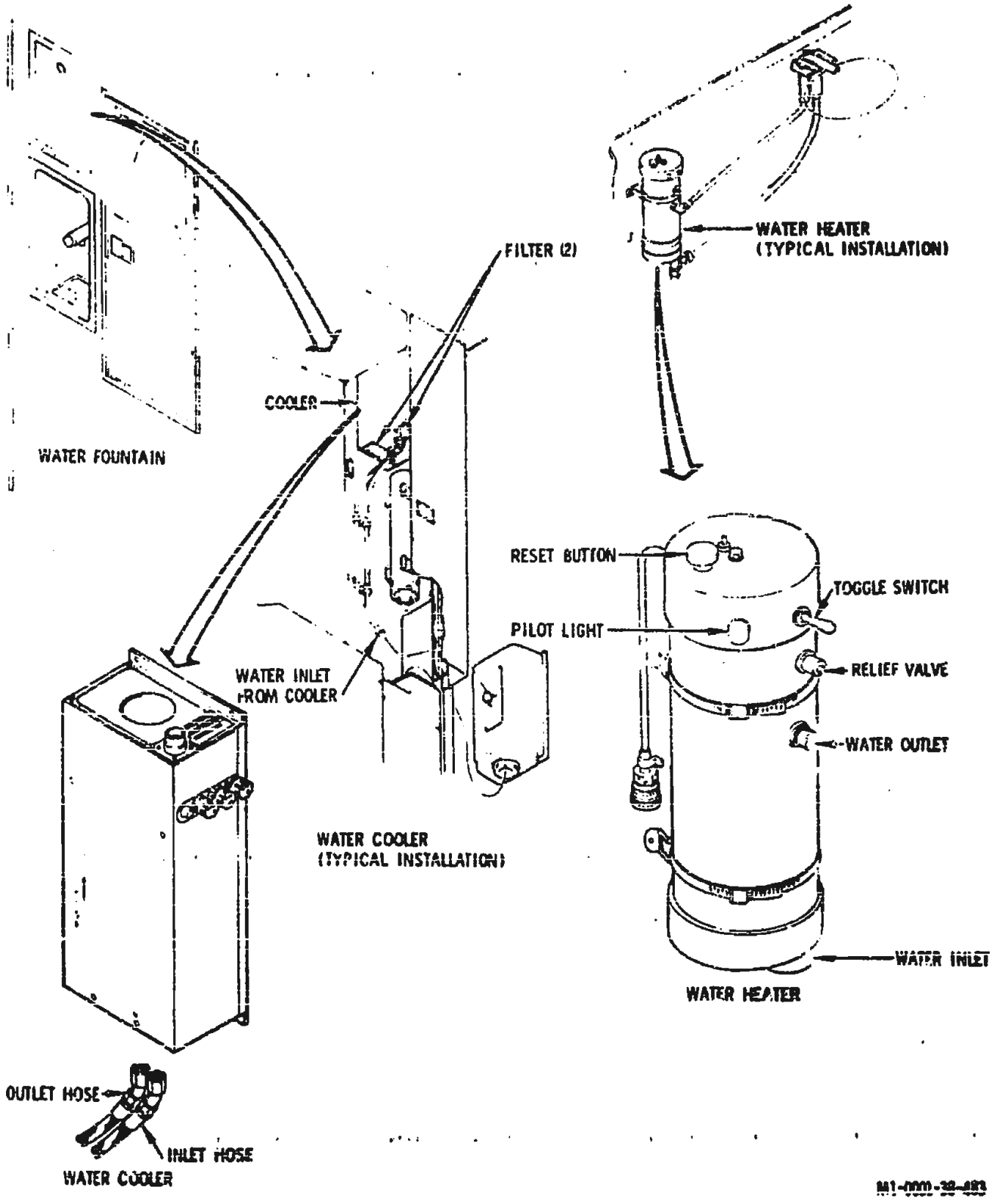
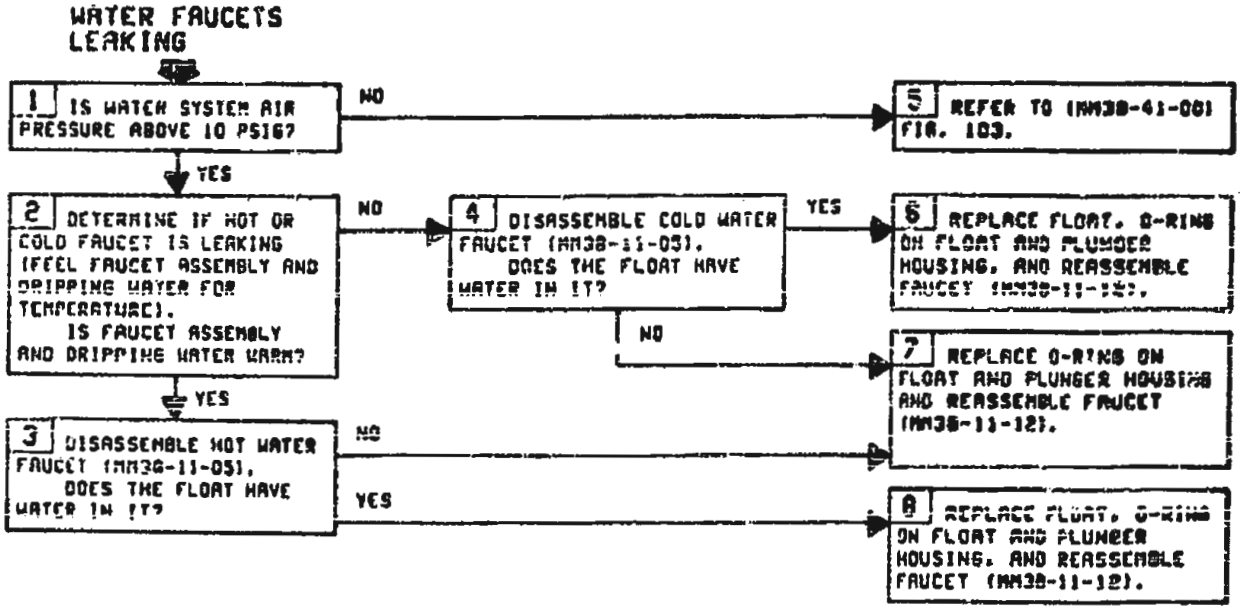
R Potable Water Distribution System Component Locator
R Figure 102 (Sheet 1)



R Potable Water Distribution System Component Locator
R Figure 102 (Sheet 2)

PREREQUISITES
ELECTRICAL POWER (MM24-41-001)
POTABLE WATER SYSTEM SERVICED (MM12-15-011)
CB'S: GALLEY RIGHT PANEL
4C, 5C, 6C - AFT LAV
7C - GALLEY
C82-A7 - FORWARD LAV

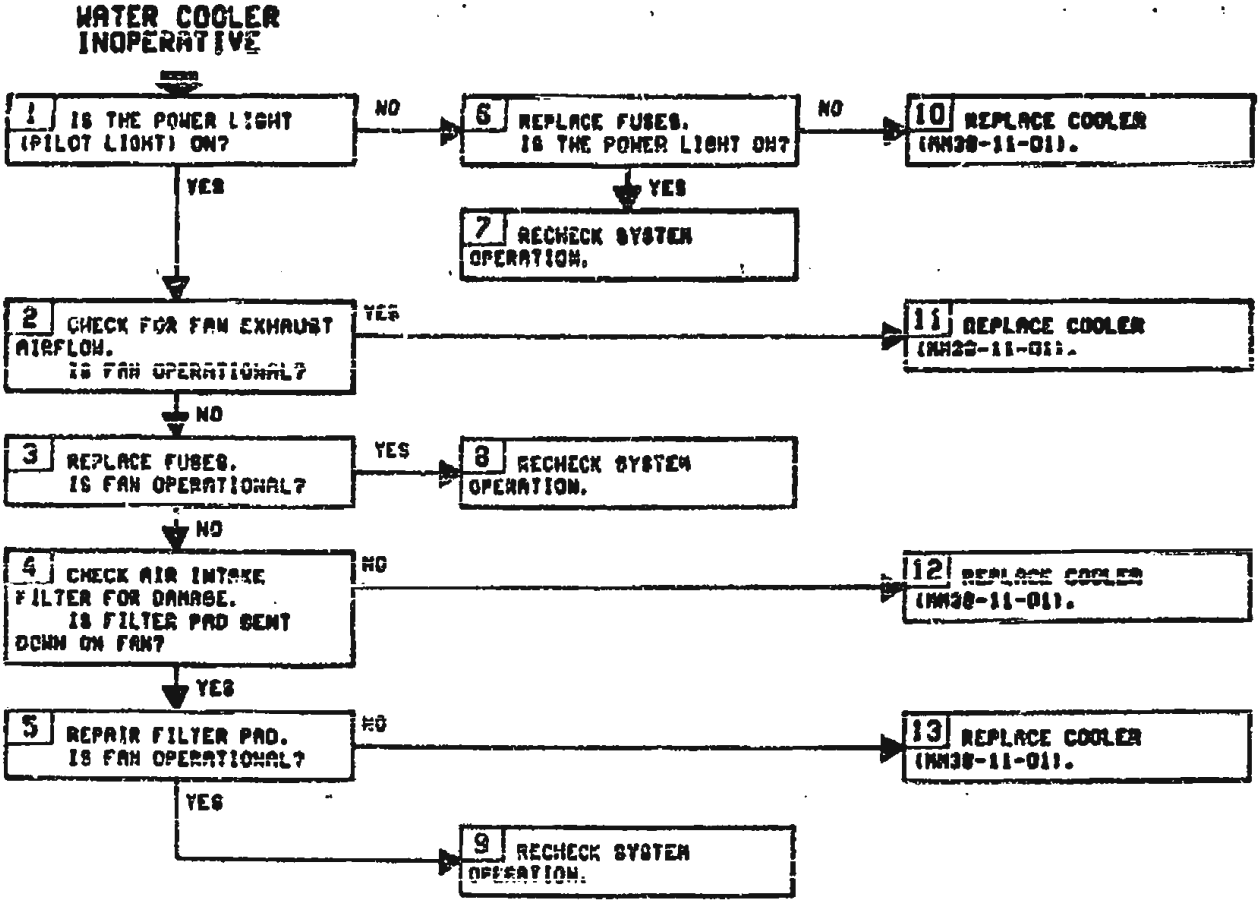

WATER FAUCETS LEAKING
1 IS WATER SYSTEM AIR PRESSURE ABOVE 10 PSIG?
NO
5 REFER TO (MM38-41-001) FIG. 103.
YES
2 DETERMINE IF HOT OR COLD FAUCET IS LEAKING (FEEL FAUCET ASSEMBLY AND DRIPPING WATER FOR TEMPERATURE). IS FAUCET ASSEMBLY AND DRIPPING WATER WARM?
NO
4 DISASSEMBLE COLD WATER FAUCET (MM38-11-03). DOES THE FLOAT HAVE WATER IN IT?
YES
6 REPLACE FLOAT, O-RING ON FLOAT AND PLUNGER HOUSING, AND REASSEMBLE FAUCET (MM38-11-12).
NO
7 REPLACE O-RING ON FLOAT AND PLUNGER HOUSING AND REASSEMBLE FAUCET (MM38-11-12).
YES
3 DISASSEMBLE HOT WATER FAUCET (MM38-11-03). DOES THE FLOAT HAVE WATER IN IT?
NO
YES
8 REPLACE FLOAT, O-RING ON FLOAT AND PLUNGER HOUSING, AND REASSEMBLE FAUCET (MM38-11-12).

NOTE
PRESSURE BELOW 10 PSIG
CAUSES ALL FAUCETS TO DRIP

R
R

Potable Water Faucet Fault Isolation
Figure 103

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
POTABLE WATER SYSTEM SERVICED (MM38-15-01)
CB'S: RH GALLEY - EC. 8C



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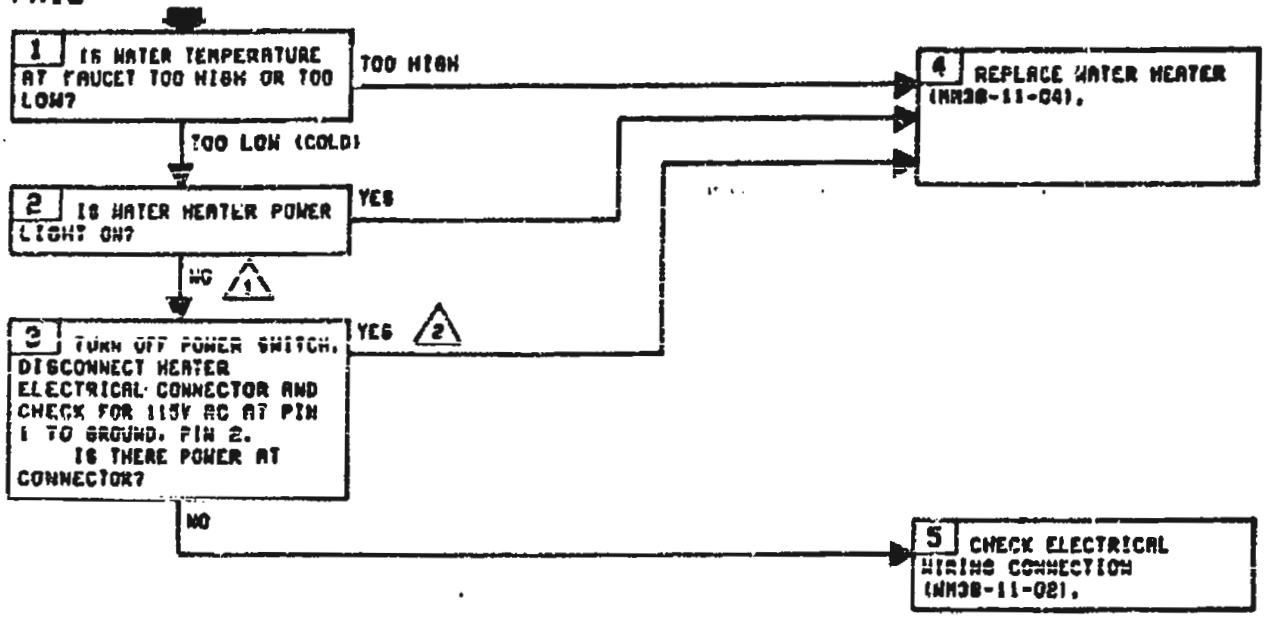
R Potable Water Cooler Fault Isolation
R Figure 104

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: GALLEY RIGHT 4C, 5C, 6C AFT LAV HEATERS
7C WATER SYSTEM HEATER GALLEY
POTABLE WATER SYSTEM SERVICED (MM12-15-01)
GALLEY LEFT 1SH FWD SVCE CTR REV BAR
CB2-7A LAV FWD WATER HEATER

POTABLE WATER HEATER TEMPERATURE CONTROL FAIL

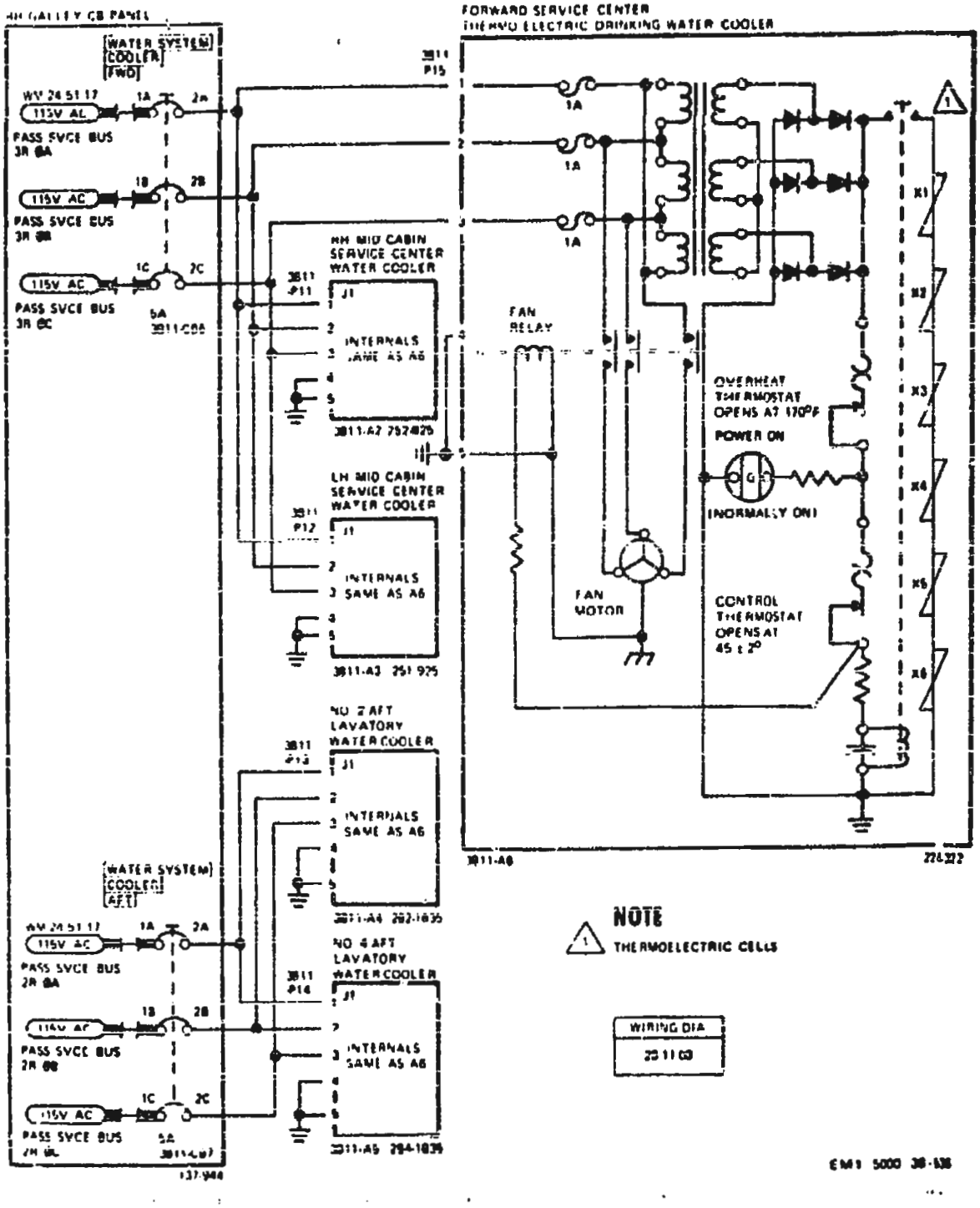

1 IS WATER TEMPERATURE AT FAUCET TOO HIGH OR TOO LOW?
TOO HIGH
TOO LOW (COLD)
4 REPLACE WATER HEATER (MM38-11-04).
2 IS WATER HEATER POWER LIGHT ON?
YES
NO
1
3 TURN OFF POWER SWITCH. DISCONNECT HEATER ELECTRICAL CONNECTOR AND CHECK FOR 115V AC AT PIN 1 TO GROUND, PIN 2. IS THERE POWER AT CONNECTOR?
YES
2
NO
5 CHECK ELECTRICAL WIRING CONNECTION (MM38-11-02).

NOTE

1. LAMP IN POWER ON LIGHT MAY BE BURNED-OUT BUT THIS WOULD NOT CAUSE LOW WATER TEMPERATURE.

2. DEPRESSING RESET BUTTON ON TOP OF HEATER MAY RESULT IN ACTIVATION OF HEATER. HOWEVER, HEATER REPLACEMENT STILL RECOMMENDED. THIS IS A SYMPTOM OF FAULTY CONTROL SWITCH WITHIN UNIT.

R Potable Water Heater Temperature Control Fail
R Figure 105



CR Potable Water Cooler Electrical Schematic
CR SCHEM 1

EFFECTIVITY: ALL

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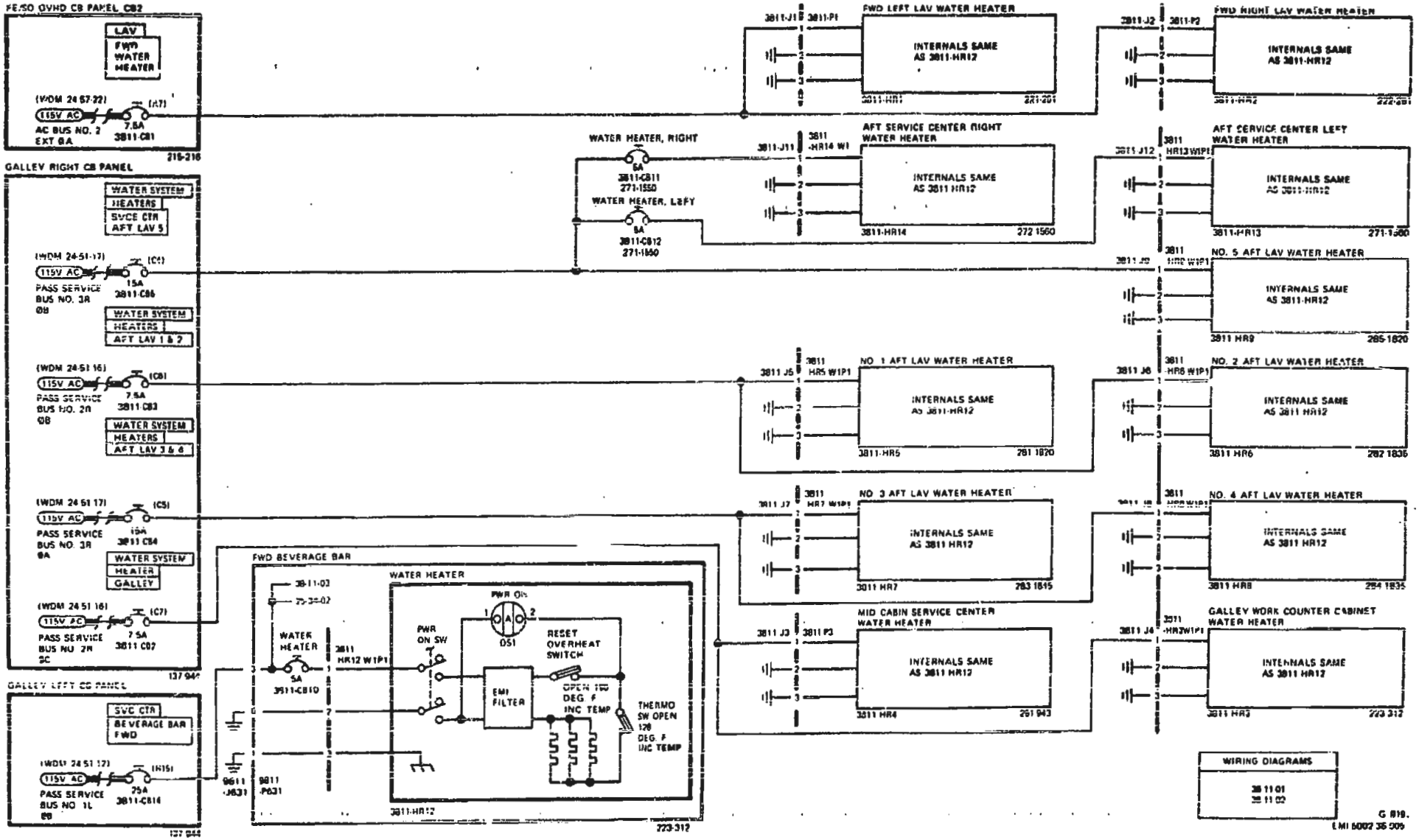

CR
CR

Water Heater Electrical Schematic
SCHEM 2

R
R
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EFFECTIVITY: ALL

DRAINING, STERILIZATION AND PURIFICATION POTABLE WATER SYSTEM MAINTENANCE PRACTICES

1. Equipment and Materials

Potable Water Service Cart, or equivalent

2. Referenced Procedures

C 25-34-05 Coffee Maker - Removal and Installation

3. Maintenance Practices

A. Draining, Sterilization and Purification

NOTE: System sterilization should be performed after completion of the leak check for any system repair in which lines are opened or system components are
C replaced. (Water purifier cartridge replacement
C excepted), whenever evidence of contamination exists,
C and routinely at some set interval of time.

CR NOTE: On A/C 11003 thru 31036, the bypass valve is safetied
CR in the BYPASS OPEN position.

(1) On galley right circuit breaker panel, zone 130, open and tag following WATER SYSTEM circuit breakers:

PRESSURIZATION - 1 (2G) and 2 (5G)

HEATER - LAV AFT 1 & 2 (6C) and GALLEY (7C)

COOLER - AFT (9C)

COOLER - FWD (2C)

HEATERS - SVCE CTR and AFT LAV 5, (4C) 3 & 4 (5C)

On galley left circuit breaker panel, zone 130, open and tag the following circuit breakers:

COFFEE MAKER (2K, 5K, 11K, 14K 13J, and 17K)

On Flight Engineer/Second Officers overhead circuit breaker panel CB2, open and tag FWD WATER HEATER (A7).

C (2) Deleted.

(3) Drain potable water system as follows:

(a) Open potable water system service panel door and connect drain hose to POTABLE WATER DRAIN AND OVERFLOW CONNECTION.

(b) Remove cap from POTABLE WATER FILL CONNECTION.

(c) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE to FILL position.

(d) Rotate SYSTEM DRAIN CONTROL HANDLE to OPEN and drain water into a suitable drainage facility or container.

C CR CR CR (4) On aircraft 11001-31031, gain access to each of the water system purifiers and assure that the purifier bypass valve is safetied in the BYPASS OPEN position.

C CR CR CR (4A) On all other aircraft, gain access to each of the water system purifiers and place purifier bypass valve in the BYPASS OPEN position.

C (5) Deleted

(6) At potable water service panel, access panel 192F, verify SYSTEM DRAIN CONTROL HANDLE is in CLOSE position.

C C C C (7) Pour 1-1/2 quarts of clorox or purex into the water system servicing hose before connecting the hose to the service panel. This will exceed the minimum requirement of 100 PPM for disinfection.

C C C NOTE: This solution must be retained in the hose so that it can be pumped into the aircraft during the filling operation.

(8) Verify system FILL & OVERFLOW HANDLE is in FILL position.

(9) C Fill system with chlorine-treated water. Turn off water supply when water overflows from overflow port.

NOTE: Check faucets for leakage while system is filling.

(10) Push in SYSTEM FILL & OVERFLOW CONTROL HANDLE to close the fill and overflow valve.

(11) On galley right circuit breaker panel, zone 130, close WATER SYSTEM - PRESSURIZATION 1 and 2 circuit breakers. Verify that system is fully pressurized to 30 (±5) psig.

(12) Provide containers under mid fuselage and aft fuselage drain masts to catch water if aircraft is not in a suitable drainage area.

C (13) Open each potable water faucet and outlet until a flow of (chlorinated solution is assured).

C (14) Refill the tank with clorinated water.

C (15) Allow system to set for a minimum of 1 hour.

(16) Open and tag circuit breakers closed in Step 3A(11).

(17) Actuate SYSTEM DRAIN CONTROL HANDLE to the OPEN position. Allow all chlorine solution to drain from system.

(18) Remove adapter, and connect potable water supply hose to fill port and drain hose to overflow port.

(19) Pull SYSTEM FILL & OVERFLOW CONTROL HANDLE to open fill and overflow valve.

C (20) Refill system with fresh potable water. Allow water to flush through system until chlorine can no longer be detected in overflow water from drain hose.

NOTE: Check faucets for leakage while system is filling.

C (21) Push in SYSTEM FILL & OVERFLOW CONTROL HANDLE to FLT POSITION and place the SYSTEM DRAIN CONTROL HANDLE to the CLOSE position.

(22) On galley right circuit breaker panel, zone 130, close WATER SYSTEM-PRESSURIZATION 1 and 2 circuit breakers. Verify that system is fully pressurized to 30 (±5)psig.

(23) Provide containers under mid fuselage and aft fuselage drain masts to catch water if aircraft is not in a suitable drainage area.

C (24) Open each potable water faucet and outlet until water is chlorine free.

(25) Refill tank with fresh potable water.

C (26) Remove servicing hoses. Close the service panel access
C door.

CR (27) On aircraft 11003-31036,
CR assure all purifier bypass valves are wired in the
CR BYPASS OPEN position, check leakage and reinstall
CR purifier access panels.

C (27A) On all other aircraft,
CR place purifier bypass valves in the BYPASS CLOSED
CR position, check for leakage and reinstall purifier
CR access panels.

(28) Remove tags and close circuit breakers opened in Step 3A(1).

C (29) Run approximately two quarts of hot water through each coffee maker. Verify water is chlorine free.

C (30) Flush each coffee maker by operating through two cycles (without using coffee); check second cycle for traces of chlorine and operate additional cycle if required.

POTABLE WATER SYSTEM - ADJUSTMENT AND TEST

R 1. General

R The following procedure provides instruction to perform a
R functional test on the potable water system, in relation, to the
R various water supply components.

R 2. Equipment and Materials

Potable Water System Ground Servicing Cart

External source of clean, dry, filtered air or nitrogen

Suitable drain facility or containers to catch potable water from overboard drains

R 3. Referenced Procedures

	12-15-01	Potable Water Tank - Servicing
	24-41-00	External Power/Ground Servicing System - Maintenance Practices
	38-13-00	Water Quantity Indication System - Adjustment and Test
	38-41-00	Air Supply System - Adjustment and Test
R	6-40-00	Exterior Access Doors and Panels
R R	38-11-14	Fill and Overflow Valve Cable - Removal and Installation

R 4. Adjustment/Test

R A. Test Preparation

R (1) Check faucets, faucet drains, and spigots for positive
R operation and freedom from sticking or binding.

R Verify force required to open sink drain valve does not
R exceed 5 pounds, and drain valve stopper opens 5/16
R inch minimum.

R (2) Check Water Service panel access door latches and
R hinges for positive operation.

Verify that access door does not close unless valve handles are in closed position.

R (3) Close all emergency shutoff valves, and leave main supply tank valve open.

B. Operational Test

(1) On Flight Engineer/Second Officers overhead circuit breakers panel, CB2, zone 215 open and tag BUS 2 - FWD WATER HEATER (A7)

(2) On galley right circuit breaker panel, zone 130, verify WATER SYSTEM-QTY/PRESS circuit breaker is closed. Verify following WATER SYSTEM circuit breakers are open and tagged:

WATER SYSTEM COOLER FWD (C2) and COOLER AFT (C9),

WATER SYSTEM HEATERS - AFT LAV 5 (C4) - 384 (C5), and AFT 1&2 (C6) - GALLEY (C7)

PRESSURIZATION - 1 (G2) and 2 (G5)

(3) Drain Potable Water Tank (Ref. 12-15-01).

(4) Gain access to under floor galley, zone 130; unlatch and swing "open" paper towel dispenser above galley sink and locate fill/overlfow valve.

(5) Disengage Fill/Overflow valve control cable (Ref. 38-11-14) and manually actuate valve handle from open to close and close to open.

(6) Re-engage control cable (Ref. 38-11-14).

R (7) Open water service panel (FS943) and operate T handle to verify proper fill/overflow valve cable tension.

NOTE: Force required to operate the fill/overflow valve shall not exceed 35 lbs, and handle travel shall be 3.00 inch minimum.

(8) On galley right circuit breakers panel, verify that WATER SYSTEM QTY/PRESS IND (B2) and WATER PRESS 1/LIGHTING WATER SVCE PNL are closed.

CAUTION: MONITOR POTABLE WATER RESSURE GAGES DURING POTABLE WATER TANK PRESSURIZATION. PRESSURE MUST NOT EXCEED 40 PSIG.

(9) Fill potable water tank (Ref. 12-15-01) and verify proper operation of all service panel control handles.

(10) Verify that potable water quantity indicator indicates full.

NOTE: Perform Potable Water Quantity Transmitter - Adjustment and Test (Ref. 38-13-00), if indicators do not agree with correct quantities.

(11) Remove water supply hose from fill fitting and push systems fill and overflow valve control T handle to close position. Replace cap on fill port.

NOTE: Approximately one quart of water will drain from fill fitting when supply hose is removed.

(12) Verify water service panel light is on. Position panel light switch up, and verify service panel light goes off. Position panel light switch down, and close water service panel door. Verify water service panel light goes off.

C. Pressurization and Leak Test

(1) Connect a regulated air source (150 to 3000 psig) to ground connection in aft cargo compartment (FS1665).

NOTE: The air pressure regulator, in air supply line, to potable water tank has the capability to reduce and limit air pressure from 25 to 39 psig.

R R

R R R

CAUTION: WHEN PRESSURIZING WATER SYSTEM FROM EXTERNAL REGULATED AIR SOURCE, ENSURE WATER TANK PRESSURE DOES NOT EXCEED 40 PSIG.

(2) Gradually apply air pressure from 150 to 3000 psi. Air pressure indicator at POTABLE WATER SERVICE panel must stabilize between 25 and 39 psig.

(3) Decrease air pressure source to 0 psig, and disconnect air supply source.

(4) Monitor potable water tank air pressure for 30 minutes. Air pressure decrease must not exceed one psig.

(5) Check potable water tank and lines for leaks. No leaks are permitted.

(6) Gradually, open faucets and spigots in lavatories and cabin galley sinks until air is vented from supply

lines (to prevent water pressure surge). Check faucets proper operation and positive flow, and check plumbing lines for leakage.

(7) Remove tags and close circuit breakers opened and tagged in Step 4B(1) and (2).

(8) Position toggle switch at each potable water heater to ON, and verify pilot light comes on.

(9) Allow 15 minutes for heater and cooler operation then check hot water faucets for hot water and drinking fountains for cool water.

(10) Close sink drain valve and fill washbasins approximately one-third full. Check leakage of drain valves. There should be no appreciable drop in water level within three minutes.

(11) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE at POTABLE WATER SERVICE panel and vent potable water tank to less than 34 psig. Verify both air compressors begin operation. Verify Flight Engineer/Second Officer annunciator panel WATER CPRSR 1 and WATER CPRSR 2 fail lights are out.

(12) Bleed water tank pressure to 34 psig or less.

(13) On galley right circuit breakers open and tag WATER SYSTEM PRESSURIZATION 1(G2) and 2(G5).

(14) Verify Flight Engineer/Second Officer annunciator panel WATER CPRSR1 and 2 fail light is on.

(15) Remove tag and close circuit breaker opened and tagged in Step 3C(14).

(16) Verify that both air compressors shut off when air pressure gage at POTABLE WATER SERVICE ground panel indicates between 39 and 41 psig.

NOTE: Perform Air Supply System - Adjustment and Test (Ref. 38-41-00) if potable water system air pressure gage does not indicate between 39 and 41 psig.

(17) Turn off electrical power (Ref. 24-41-00).

R THERMOELECTRIC DRINKING WATER COOLER FILTER - MAINTENANCE PRACTICE

R 1. General

CR Two cooling air inlet filters, consisting of a coarse mesh pad
CR glued to a wire screen, are installed in the air ports at the
CR bottom of cooler cover.

R A. Removal

R (1) Gain access to water cooler by opening drinking cup
R stowage access door.

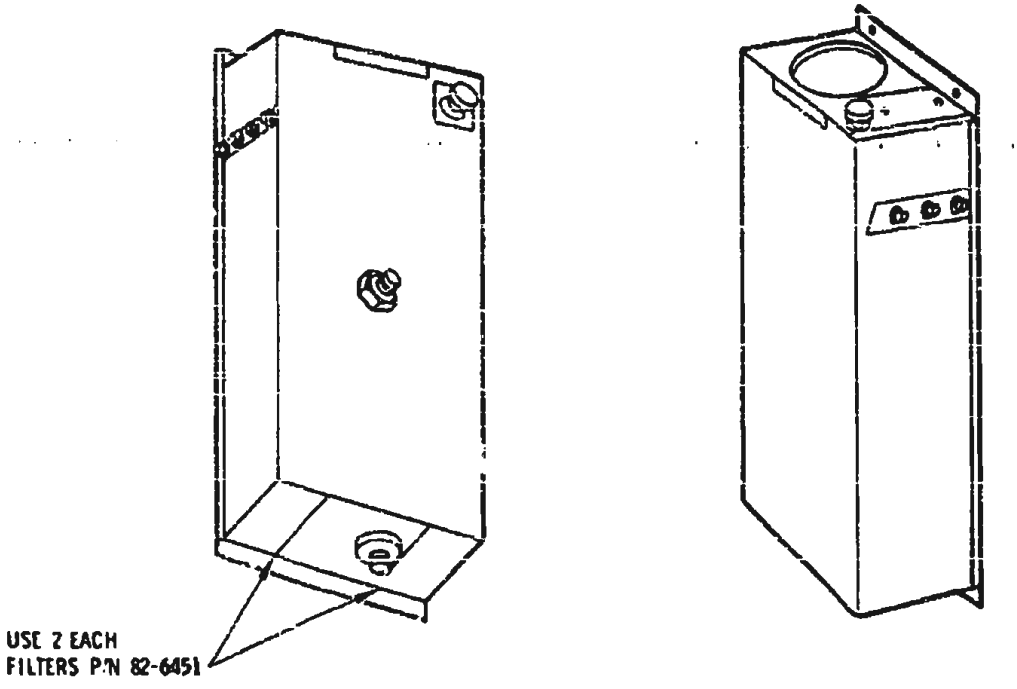
CR (2) Remove baffle assembly below water cooler and pull both
CR filter assemblies from bottom of water cooler.

R (3) Clean filter and screen assembly in warm water, or
R replace if no longer serviceable.

R B. Installation

CR (1) Insert a filter assembly in both recesses in bottom of
CR water cooler, and install baffle assembly.

R (2) Close drinking cup stowage access door.



400-579M3 AND TWA MODIFIED

400-578M3 AND TWA MODIFIED

NOTE

LATER DELIVERED AIRCRAFT CONTAIN A NEWER MODEL M3 WHICH INCORPORATES A CHANGE IN DIRECTION OF THE COOLING AIR FLOW. THE AIR INLET AND 2 SMALL FILTERS ON THESE UNITS ARE LOCATED IN THE BOTTOM. AIR EXITS THE TOP OF THE COOLER AND TWO EACH P/N 82-6451 FILTERS ARE REQUIRED.

M1-5000-36-539

CR
CR

Drinking Water Cooler
Figure 401

R
R
001B

EFFECTIVITY: ALL

THERMOELECTRIC DRINKING WATER COOLER - REMOVAL AND INSTALLATION

1. General

C R A thermoelectric drinking water cooler (Ref. Fig. 401) is installed close to each of five drinking fountains on the aircraft. Except for access and minor procedural differences, this removal and installation procedure is the same for each water cooler.

2. Equipment and Materials

Protective caps and plugs

C Filters, 82-6451

3. Referenced Procedure

6-40-00 Exterior Access Doors and Panels

4. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breaker WATER SYSTEM - COOLER FWD or WATER SYSTEM - COOLER AFT.

R R R NOTE: Forward system supplies water to drinking fountain in forward service center, and aft system supplies drinking fountains in mid service center and aft lavatory area.

(2) Open access door 192F (Ref. 6-40-00) and pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE to drain cooler and cooler water supply line.

(3) Gain access to water coolers as follows:

(a) Forward service center: Open maintenance access door on right inboard side, behind drinking fountain.

(b) Mid service center: Open door to left or right serving cart stowage area and remove cart. Access to water cooler is through opening in upper rear of cart stowage area.

(c) Aft lavatory area: Inside lavatory, zone 282 or 284, as applicable, open water cooler/drinking fountain access door on forward partition over sinktop.

(4) Disconnect electrical connector.

(5) Disconnect INLET and OUTLET hose assemblies.

(6) Remove water cooler by removing shock mounts (3 screws).

B. Installation

(1) Install water cooler shock mounts using three screws on each shock mount.

(2) Connect INLET and OUTLET hose assemblies.

NOTE: Outlet hose assembly connects with drinking fountain and inlet hose assembly to water supply line.

(3) Connect and secure electrical connector.

(4) Close access door.

(5) Push in SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE and close access door 192F (Ref. 6-40-00).

R (6) Remove tag and close circuit breaker opened in Step 4A(1).

R

WATER PURIFIER - REMOVAL AND INSTALLATION

R 1. General

CR NOTE: The following procedure pertains to aircraft 001 and 002
CR only.

R Water purifiers are installed upstream of each using facility in
R the potable water distribution system. Each purifier consists
R of a disposable activated charcoal filtration cartridge and a
R manifold having inlet and outlet shutoff valves that permit
R cartridge replacement without loss of water.

R CAUTION: DURING INSTALLATION PROCEDURES LUBRICATE O-RINGS WITH
R CLEAN POTABLE WATER TO PREVENT O-RING TWIST OR PINCH.
R WHEN TIGHTENING HOSE CONNECTIONS VERIFY THAT THE HOSES
R ARE NOT KINKED OR TWISTED.

R 2. Equipment and Materials

R Protective caps and plugs

R O-rings (Ref. Fig. 401)

R 3. Referenced Procedures

R 6-40-00 Exterior Access Doors and Panels

R 25-41-02 Lower Module - Removal and Installation

R 4. Removal/Installation

R A. Removal

R (1) On galley right circuit breaker panel, zone 130, open
R and tag following WATER SYSTEM circuit breakers:

R PRESSURIZATION 1 (G2)

R PRESSURIZATION 2 (G5)

R (2) Gain access to water purifiers as follows:

CR Forward beverage center - open maintenance door on
CR inboard face of right side service console

R Mid service center

R (a) Lower galley lifts to galley.

R (b) On the passenger compartment lift control panel, zone 250, move master (key) switch to OFF and tag, or, on galley circuit breaker panels, zone 130, open and tag circuit breakers LIFT LEFT and LIFT RIGHT.

R WARNING: PROCEED WITH CAUTION WHEN ENTERING AREA OVER GALLEY LIFTS.

R (c) Open lift door and step onto lift cage.

R (d) While standing on lift cage, remove lower access panel on plastic cover shroud by turning winged-head studs.

CR Aft lavatories - remove lower service modules (Ref. 25-41-02), only 2 and 4 lavatories,.

R Galley

R (a) Remove serving carts stowed inboard of galley left vertical side panels.

R (b) Remove aft vertical side panel by rotating panel attach studs 90 degrees counterclockwise and pull bottom of panel inboard to disengage it from the studs and upper channel.

R (3) Open access door 192F (Ref. 6-40-00) and pull the SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE; allow approximately 15 minutes to drain the purifier water supply lines back to water tank.

R (4) Close manual shutoff valve below water purifier, (Ref. Fig. 401).

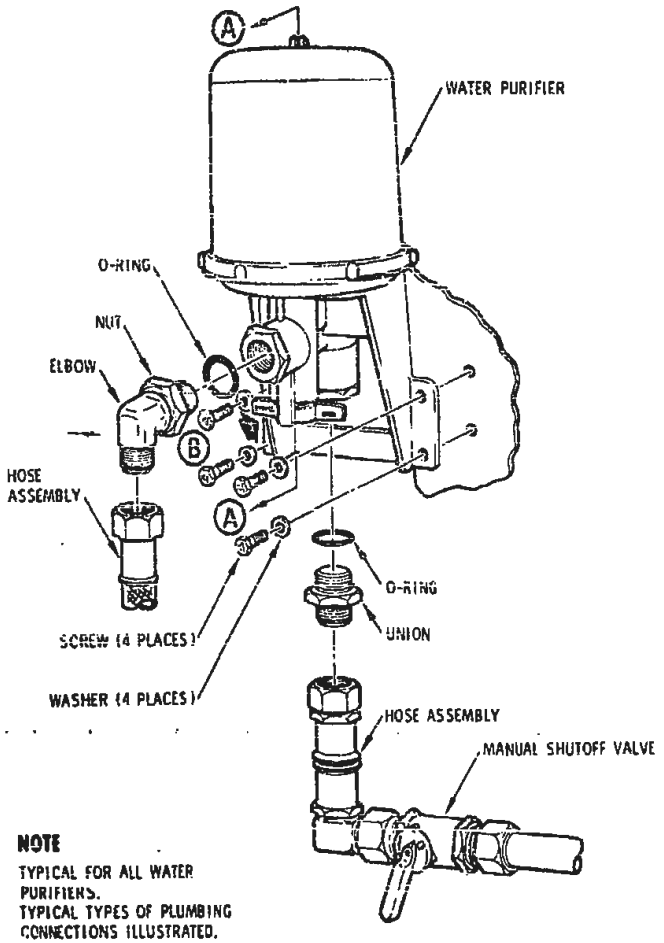
R (5) Disconnect water inlet and outlet hoses, (Ref. Fig. 401). Cap disconnected hoses.

R (6) Remove purifier attach flange screws and washers to separate the purifier from its support panel.

R (7) Remove fittings from inlet and outlet ports and retain for reinstallation. Discard O-rings.

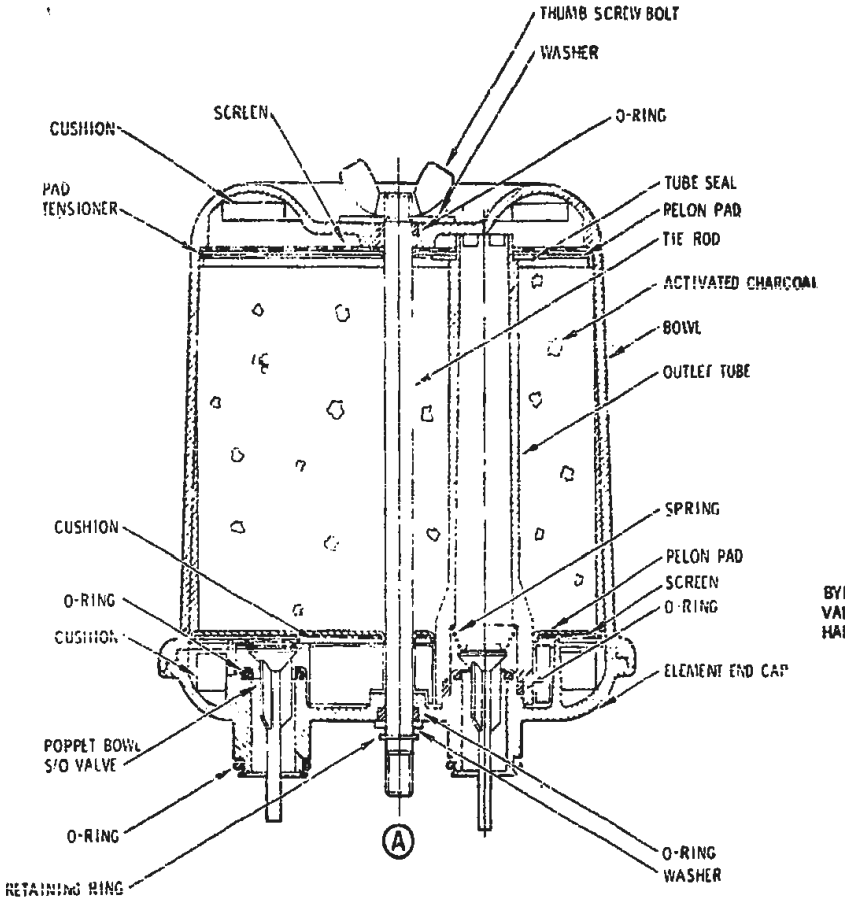
R B. Installation

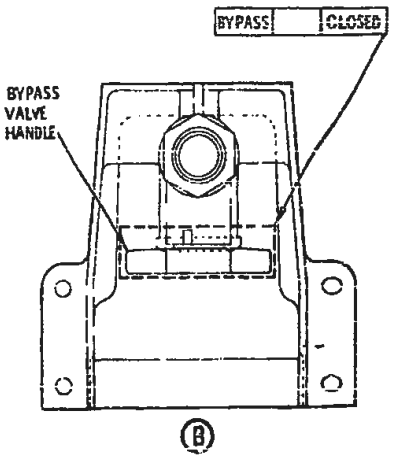
R (1) Verify that circuit breakers opened in Step 4A(1) are open and tagged.



NOTE

TYPICAL FOR ALL WATER PURIFIERS.
TYPICAL TYPES OF PLUMBING CONNECTIONS ILLUSTRATED.





MI-0001-38-681

CR Water Purifier - Removal and Installation
CR Figure 401

R EFFECTIVITY: 001-002
R
001B

R (2) If water purifier was removed from the mid service center, verify that lift control master switch is in OFF position or that LIFT LEFT and LIFT RIGHT circuit breakers are open and tagged.

R (3) Install elbow fitting, jamnut, and new O-ring in water outlet port. Do not tighten jamnut at this time. Install new O-ring and union in water inlet port.

R (4) Mount purifier on support panel and install attach screws and washers.

R (5) Remove protective caps and install water inlet and outlet hoses. Tighten jammut on outlet port elbow when proper orientation with outlet hose is determined.

R NOTE: The water heater inlet hose is connected to the purifier, and the outlet port hose from manual shutoff valve is connected to inlet port.

CR (5A) Verify bypass valve is in BYPASS CLOSED position (Ref. Fig. 401, view B).

R (6) Open manual shutoff valve.

R (7) AT potable water service panel, push in SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE and close access door.

R (8) If water purifier in lavatories, was replaced, reinstall supply modules (Ref. 25-41-02).

R (9) If water purifier in mid service center was replaced, remove tags and close circuit breakers, or, remove tag and move master (key) switch to one of three LIFT positions [Ref. Step (1)].

R (10) If water purifier in galley was replaced, reinstall aft vertical side panel as follows:

R (a) Tilt top of panel outboard so that top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

R (b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

R (c) Return serving carts to stowed position inboard of vertical side panels.

R (11) Remove tags and close circuit breakers opened in Step
R 4A(1).

R 5. Purifier Cartridge Replacement.

R The purifier cartridge is secured to the purifier manifold by a
R thumbscrew bolt that passes through the cartridge and into the
R manifold. Removal of the cartridge automatically closes the
R cartridge inlet and outlet ports, in both manifold and
R cartridge. This feature permits cartridge replacement without
R loss of water.

R A. Removal

R (1) Gain access to water purifier as noted in Step4A(2).

R (2) Place purifier supply line manual shutoff valve in
R CLOSED position (Ref. Fig. 401).

CR (3) Loosen thumbscrew bolt to separate and remove cartridge
R from manifold.

R B. Installation

R (1) Place new cartridge in position on purifier manifold
R with inlet and outlet ports aligned with corresponding
R recesses in the manifold (Ref. Fig. 401).

R (2) Tighten thumbscrew bolt.

R (3) Open purifier supply line manual-shutoff valve.

CR (4) Verify that the bypass valve is in BYPASS CLOSED
CR position (Ref. 401, view B).

R (5) Pressurize potable water system and check cartridge for
R leakage.

DRINKING FOUNTAIN ASSEMBLY - REMOVAL AND INSTALLATION

1. General

Except for access and minor procedural differences, this removal and installation procedure is the same for all drinking fountains.

2. Equipment and Materials

Protective cap and plug

O-ring

Gasket

3. Removal/Installation

A. Removal

(1) Turn off water supply to drinking fountain as follows:

(a) On galley left vertical side panel, open FORWARD AND AFT SYSTEM SHUTOFF VALVES POTABLE WATER SYSTEM access door.

(b) Close and tag potable water manual shutoff valve for forward or aft system, as applicable.

R NOTE: Forward system supplies water to drinking
R fountain in forward beverage bar, and aft
R system supplies drinking fountains in mid
R service center and aft lavatory area.

(2) Gain access to drinking fountain plumbing as follows:

(a) Forward beverage bar: Open drinking fountain access door, inside left work area, behind drinking fountain.

(b) Mid service center:

Open door to left or right cart stowage area, as applicable. Access to drinking fountain plumbing is through opening in upper rear of cart stowage area.

(c) Aft lavatory area:

Inside lavatory, zone 282 or 284, as applicable, open water cooler/drinking fountain access door on forward partition over sinktop.

(3) Remove cup dispenser or slide dispenser upward until clear of fountain assembly.

(4) Disconnect water inlet hose assembly from drinking fountain (Ref. Fig. 401).

(5) Insert protective plug in hose assembly fitting and cap drinking fountain fitting.

(6) Disconnect drinking fountain drain fitting from drain line.

(7) Remove screws from drinking fountain.

(8) Tilt top of drinking fountain outward and lift from panel.

(9) Lift drain plate from bottom of drinking fountain.

(10) Unscrew drain fitting union from drain fitting and remove union, O-ring, drain fitting, and gasket.

B. Installation

(1) Lift drain plate from bottom of drinking fountain.

(2) Install drain fitting union, O-ring, drain fitting, and gasket to bottom of drinking fountain (Ref. Fig. 401).

R NOTE: To assure drain fitting will connect with drain line, orient drain fitting to correct position before tightening union.

(3) Reinstall drain plate into bottom of drinking fountain.

R (4) Verify drain is clean and clear of obstruction.

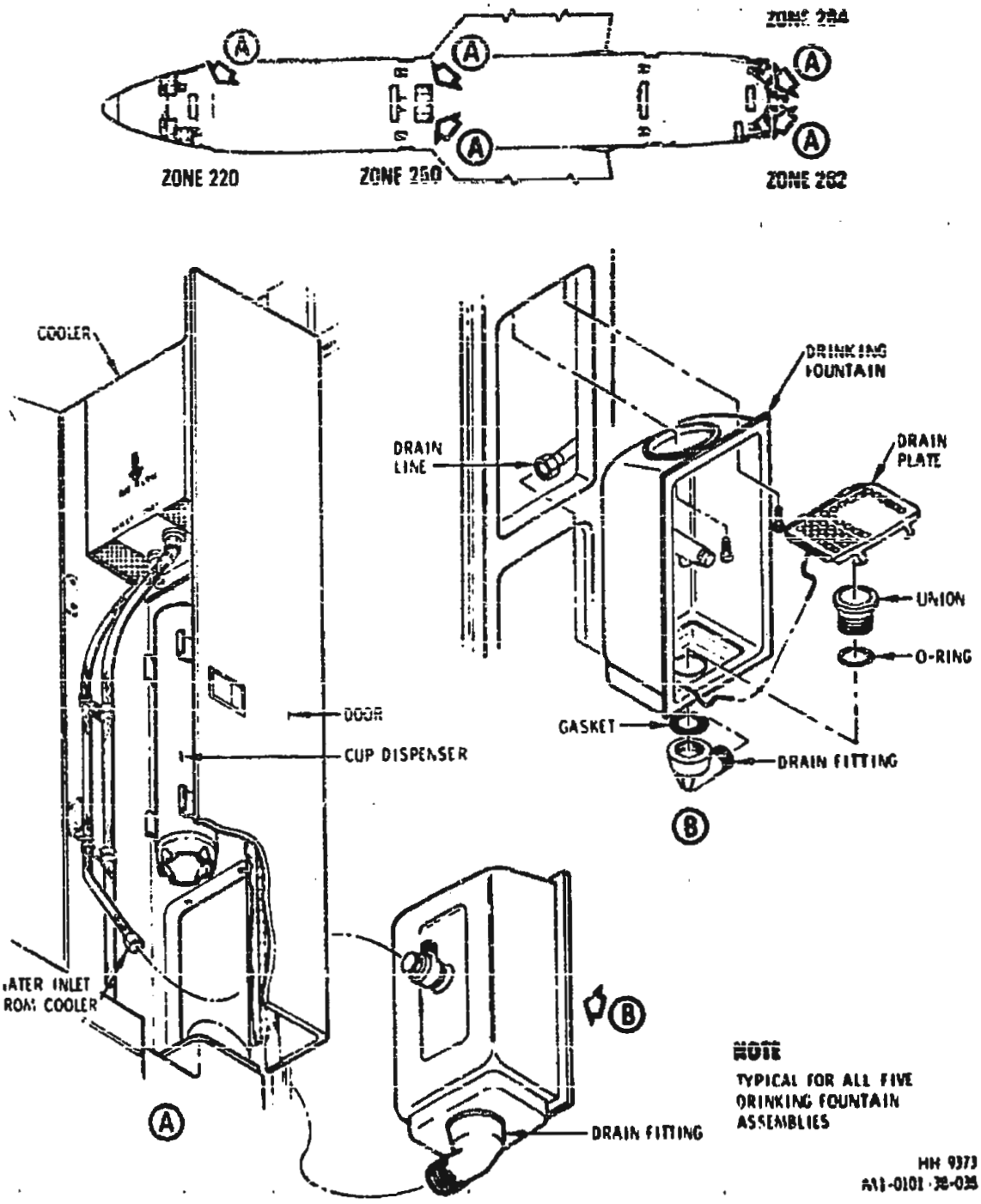
(5) Insert drinking fountain into panel, bottom first.

(6) Install drinking fountain retaining screws.

(7) Connect drain line to drinking fountain drain fitting.

(8) Remove protective cap and plug and connect water inlet hose assembly to drinking fountain.

(9) Install cup dispenser so that it engages hole in top of fountain assembly.



R Drinking Fountain Assembly - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

(10) Close applicable access door opened in Step 3A(2).

(11) Remove tag and open manual shutoff valve closed in Step 3A(1)(b).

(12) Close access door opened in Step 3A(1)(a).

(13) Run several cups of water through drinking fountain to assure elimination of foreign particles that may have entered system during removal and installation procedures.

WATER HEATER - REMOVAL AND INSTALLATION

1. General

R R Nine water heaters are installed in potable water distribution system to provide heated water for galley and service center sinks and lavatory wash basins. Location of, and access to, the water heaters are as follows:

A. Forward lavatories: Open lower supply module door and remove supply module.

B. Mid cabin service center: Proceed as follows:

(1) Lower galley lifts to galley.

(2) On the passenger compartment right lift control panel, zone 250, move master (key) switch to OFF and tag, or on galley left circuit breaker panel, zone 130, open and tag circuit breaker LIFT LEFT, and on galley right circuit breaker panel, zone 130, open and tag circuit breaker LIFT RIGHT.

WARNING: PROCEED WITH CAUTION WHEN ENTERING AREA OVER GALLEY LIFTS.

(3) Open lift door and step onto lift cage.

(4) While standing on lift cage, remove lower access panel on plastic cover shroud by turning winged-head studs.

C. Aft lavatories: Open lower supply module door and remove supply module.

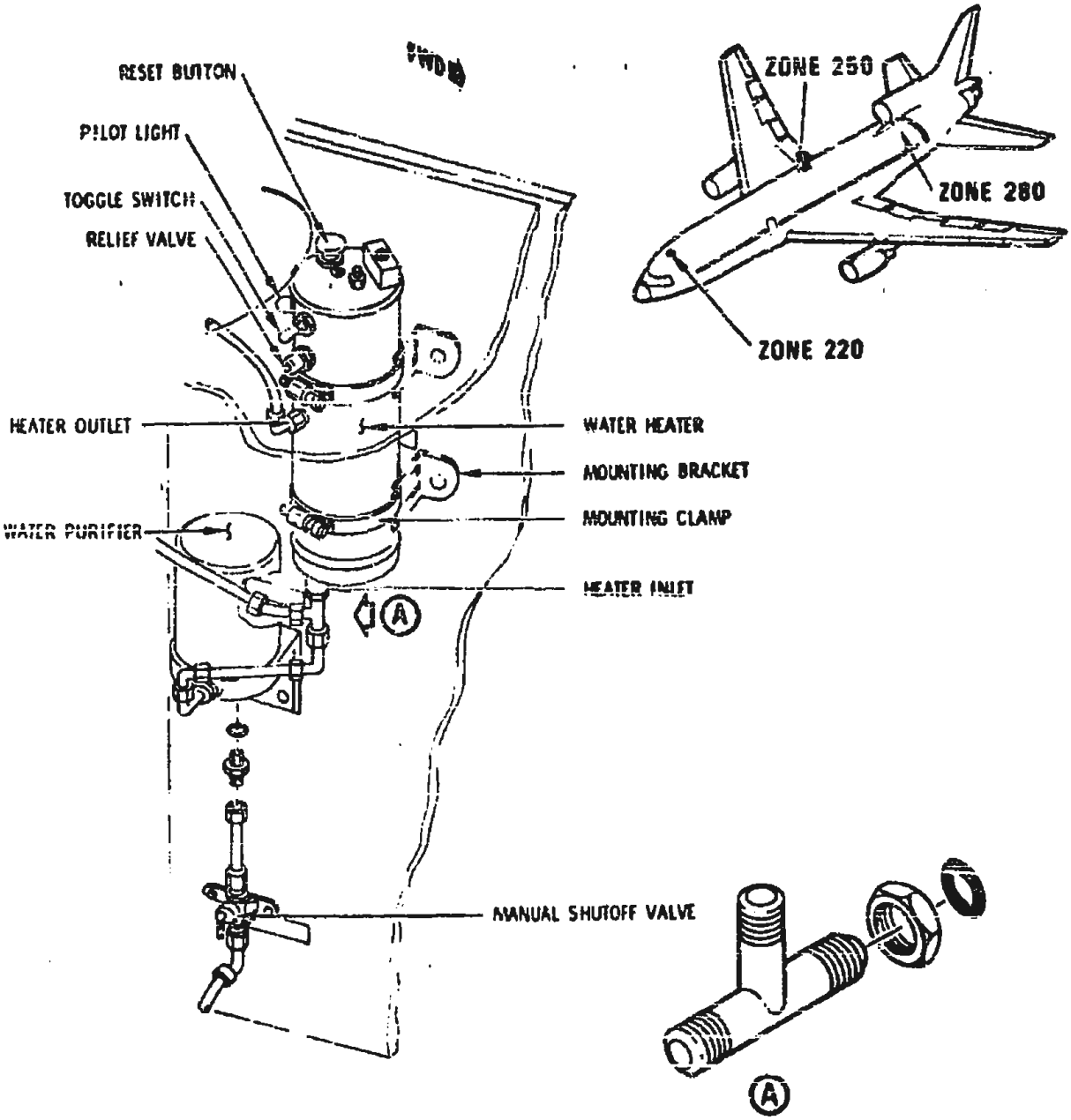
D. Galley: Proceed as follows:

R (1) Remove serving carts stowed inboard of galley left vertical side panels.

(2) Remove aft vertical side panel as follows:

(a) Turn attachment studs that secure panel to structure 90 degrees counterclockwise.

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.



M1-9500-38-338

R Water Heater - Removal and Installation
R Figure 402

EFFECTIVITY: ALL

0018

2. Equipment and Materials

Protective caps and plugs

O-rings

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag following circuit breakers, as applicable:

(a) WATER SYSTEM HEATER GALLEY (for either or both galley and mid service center heaters).

R (b) WATER SYSTEM HEATER LAV AFT 1 & 2 (for either or both aft lavatory 1 and 2 heaters).

(c) WATER SYSTEM HEATERS LAV AFT 3 & 4 (for either or both aft lavatory 3 and 4 heaters).

(d) WATER SYSTEM HEATERS LAV AFT 5 (for aft lavatory 5 heater).

(2) On Flight Engineer/Second Officers overhead circuit breaker panel (CB2), zone 216, open and tag LAV FWD WATER HEATER (for either or both forward lavatory heaters).

(3) Stop water flow through water heater by closing manual shutoff valve below water purifier.

(4) Disconnect electrical connection.

(5) Disconnect plumbing lines and remove water heater from panel by loosening clamps. Do not remove clamps from brackets. Cap or plug fittings and ports.

B. Installation

(1) If water heater is being installed in mid cabin service
R center, verify switch is in OFF position or circuit breakers are open and tagged as directed in Step 1B(2).

(2) Install water heater on brackets using clamps.

(3) Remove caps and plugs from ports and fittings and connect plumbing lines to water heater. Inlet port connection requires nut, backup ring, and new O-ring.

(4) Connect and secure electrical connection.

(5) Open manual shutoff valve.

(6) Reinstall supply modules and close supply module doors, or reinstall panels and doors, as applicable (Ref. Para. 1).

(7) If water heater is being installed in mid cabin service center, remove tags and close circuit breakers, or, remove tag and move master (key) switch to one of three LIFT positions [Ref. Step 18(2)].

(8) If water heater is being installed in galley, reinstall aft vertical side panel as follows:

R

(a) Tilt top of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(c) Return serving carts to stowed position inboard of vertical side panels.

R WATER FAUCET AND DRAIN VALVE ASSEMBLY - REMOVAL AND INSTALLATION

1. General

R The Water Faucet and drain valve assemblies are installed at
R each Lavatory Washbasin and at lower galley washbasin. The
R Removal and installation procedure is similar for each water
R faucet and drain valve assembly except for location.

2. Equipment and Materials

Protective caps and plugs

O-rings

Grease, MIL-G-4343, or equivalent

Trichloroethane, MIL-T-81533, or equivalent

Sealing Compound, LAC Spec LCM 40-2180, Type I, or equivalent

3. Removal/Installation

A. Removal

R (1) Open access door below applicable Washbasin.

(2) Close manual shutoff valve in water supply line below washbasin.

(3) Loosen fittings and disconnect faucet and drain plumbing lines (Ref. Fig. 401).

(4) Remove drain spring between faucet and valve drain actuator.

(5) Loosen setscrew in gimbal and separate push rod drain actuator from valve drain actuator.

(6) Remove faucet by removing screws from underside of faucet and lifting faucet assembly upward from washbasin.

(7) Remove drain valve assembly as follows:

(a) Push down on valve drain actuator to raise valve in washbasin and rotate valve counterclockwise

until it disengages from valve drain actuator. Remove valve.

(b) Remove O-ring, snapring, and screen from valve.

(c) Unscrew flange nut from housing and remove housing, washer, gasket, and valve drain actuator as an assembly from underside of washbasin.

R (d) Except for O-rings and gasket, package all components in plastic bag, or equivalent, unless intended for immediate reinstallation. Discard O-rings and gasket.

B. Installation

(1) Clean faying surfaces of washbasin with a clean cloth wet with trichloroethane. Wipe surfaces dry with a clean, dry cloth.

NOTE: Do not allow surfaces to air dry.

(2) Immediately before installation of components, apply sealing compound to faying surfaces of faucet, washbasin, and drain valve assembly washer and flange nut. Sufficient sealing compound should be applied to ensure a continuous extruded bead around each component.

(3) Install drain valve assembly as follows (Ref. Fig. 401):

(a) Install housing, washer, and gasket on underside of washbasin, and screw in flange nut from top side of washbasin.

(b) Remove extruded sealing compound from around flange nut with a clean cloth dampened with trichloroethane. Wipe surface dry with a clean, dry cloth.

NOTE: Do not allow surface to air-dry.

(c) Install screen and snapring in valve.

CAUTION: DO NOT DAMAGE O-RING.

(d) Coat new O-ring lightly with grease and install on valve.

(e) Install valve and O-ring in drain. Push down on valve drain actuator and rotate valve clockwise until valve engages valve drain actuator.

(4) Install faucet after applying sealing compound as indicated in Step 3B(2). Apply sealing compound to screws before installing. Remove extruded sealing compound as indicated in Step 3B(3)(b).

(5) Connect push rod drain actuator to valve drain actuator through gimbal and tighten setscrew.

(6) Install drain spring between faucet and valve drain actuator.

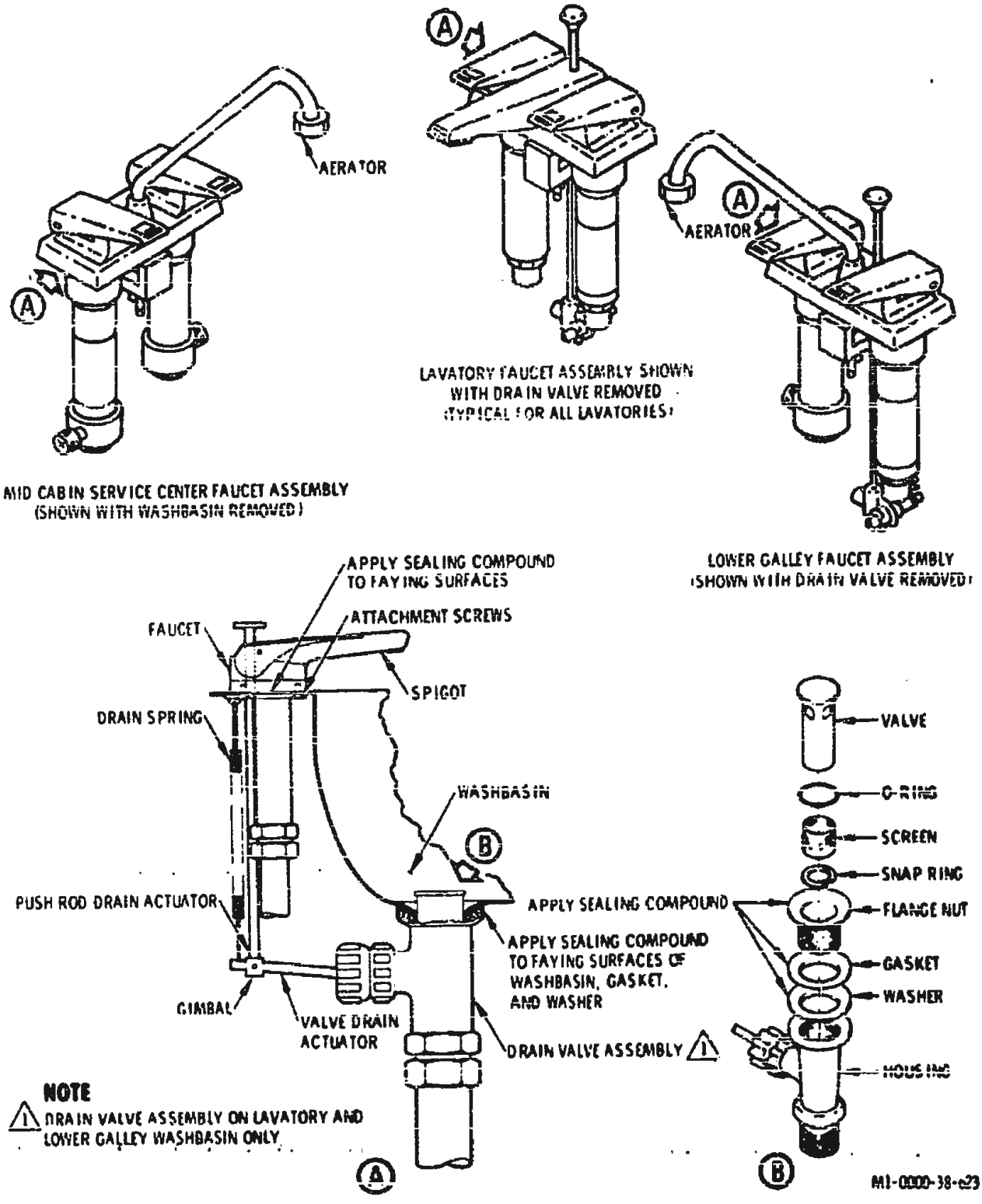
CAUTION: DO NOT DAMAGE O-RINGS.

(7) Coat new O-rings lightly with grease and install with fittings.

(8) Connect faucet and drain plumbing lines.

(9) Open manual shutoff valve in water supply line below washbasin.

(10) Close access door below applicable washbasins.



R Water Faucet and Drain Valve - Removal and Installation
R Figure 401

EFFECTIVITY: ALL

0018

MANUAL SHUTOFF VALVE - REMOVAL AND INSTALLATION

1. General

R Manual shutoff valves are installed in supply lines from potable
R water tank to each using facility in potable water system to
R provide a means of isolating a facility or section of system for
maintenance purposes.

2. Equipment and Materials

Protective caps

3. Referenced Procedures

6-40-00	Exterior Access Doors and Panels
12-15-01	Potable Water Tank - Servicing
25-41-02	Lower Module - Removal and Installation
38-11-00	Potable Water System - Maintenance Practices

4. Removal/Installation

A. Gain Access

(1) Forward Lavatories

(a) Open lower supply module door under washbasin and remove supply module (Ref. 25-41-02).

(2) Aft Lavatories

(a) Open lower supply module door under washbasin and remove supply module (Ref. 25-41-02).

(3) Mid Service Center

(a) Lower galley lifts to galley position.

(b) On galley left circuit breaker panel, zone 130, open and tag circuit breaker LIFT LEFT, and on galley right circuit breaker panel, zone 130, open and tag circuit breaker LIFT RIGHT.

(c) Open one of the lift doors and step onto lift cage.

(d) Remove lower access panel on plastic shroud covering valves.

(4) Galley Countertop Sink

(a) Remove aft serving cart stowed inboard of galley left vertical side panels.

(b) Open access panel 133EL located in left vertical side panel.

(5) Potable Water Tank

(a) Remove center serving cart stowed inboard of galley left vertical side panels.

(b) Open access panel 133DL located in left vertical side panel 133BL.

(6) Forward Beverage Bar

(a) Open access panel on right outboard side of service center.

(7) Mid Aft Service Center

R (a) Remove serving cart stowed to left of aircraft
R centerline.

R (b) Open shutoff valve access door on forward side of
R aft partition.

B. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM - PRESSURIZATION 1 and 2.

(2) Open potable water system service panel access door 192F (Ref. 6-40-00) and connect drain hose to POTABLE WATER DRAIN AND OVERFLOW CONNECTION.

(3) Remove cap from POTABLE WATER FILL CONNECTION.

(4) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE to FILL position.

(5) Rotate SYSTEM DRAIN CONTROL HANDLE to OPEN and drain water into a suitable drainage facility or container.

NOTE: Drain water only to level that will allow maintenance on applicable shutoff valve without spillage.

(6) Gain access to applicable shutoff valve (Ref. Para. 4A).

(7) Disconnect water lines from shutoff valve.

NOTE: Observe direction of flow arrow on side of valve for installation.

(8) Support shutoff valve, remove attachment screws and remove valve.

(9) Cap water lines.

C. Installation

(1) Place shutoff valve in position for attachment ensuring flow arrow is pointing in correct direction.

(2) Install attachment screws and ensure valve handle is in open position.

(3) Remove caps; connect and tighten waterlines.

(4) Perform sterilization and purification as necessary (Ref. 38-11-00).

(5) Fill and pressurize system; check for leaks at valve connections (Ref. 12-15-01).

(6) Replace panels, close access doors, close circuit breakers, and replace carts that were disturbed for access.

(7) Remove tags and close circuit breakers opened in Step 4B(1).

FILL AND OVERFLOW VALVE - REMOVAL AND INSTALLATION

1. Equipment and Materials

   Protective caps and plugs

2. Reference Procedure

   56-21-02 Galley Compartment Window - Removal and Installation

3. Removal/Installation

   A. Removal

R (1) On galley right circuit breaker panel open and tag PASS SERV BUS 3R - WATER SYSTEM-PRESSURIZATION 1 (G2) and 2 (G5).

   (2) Gain access to fill and overflow valve as follows:

      (a) Remove galley compartment window (Ref. 56-21-02).

      (b) Above galley sink, unlatch and swing open paper towel dispenser to gain access to fill and overflow valve (Ref. Fig. 401).

   (3) With control handle in horizontal (valve closed) position, secure cable in position.

   (4) Remove retaining ring holding control handle on valve shaft and remove control handle from valve. Retain key for re-use.

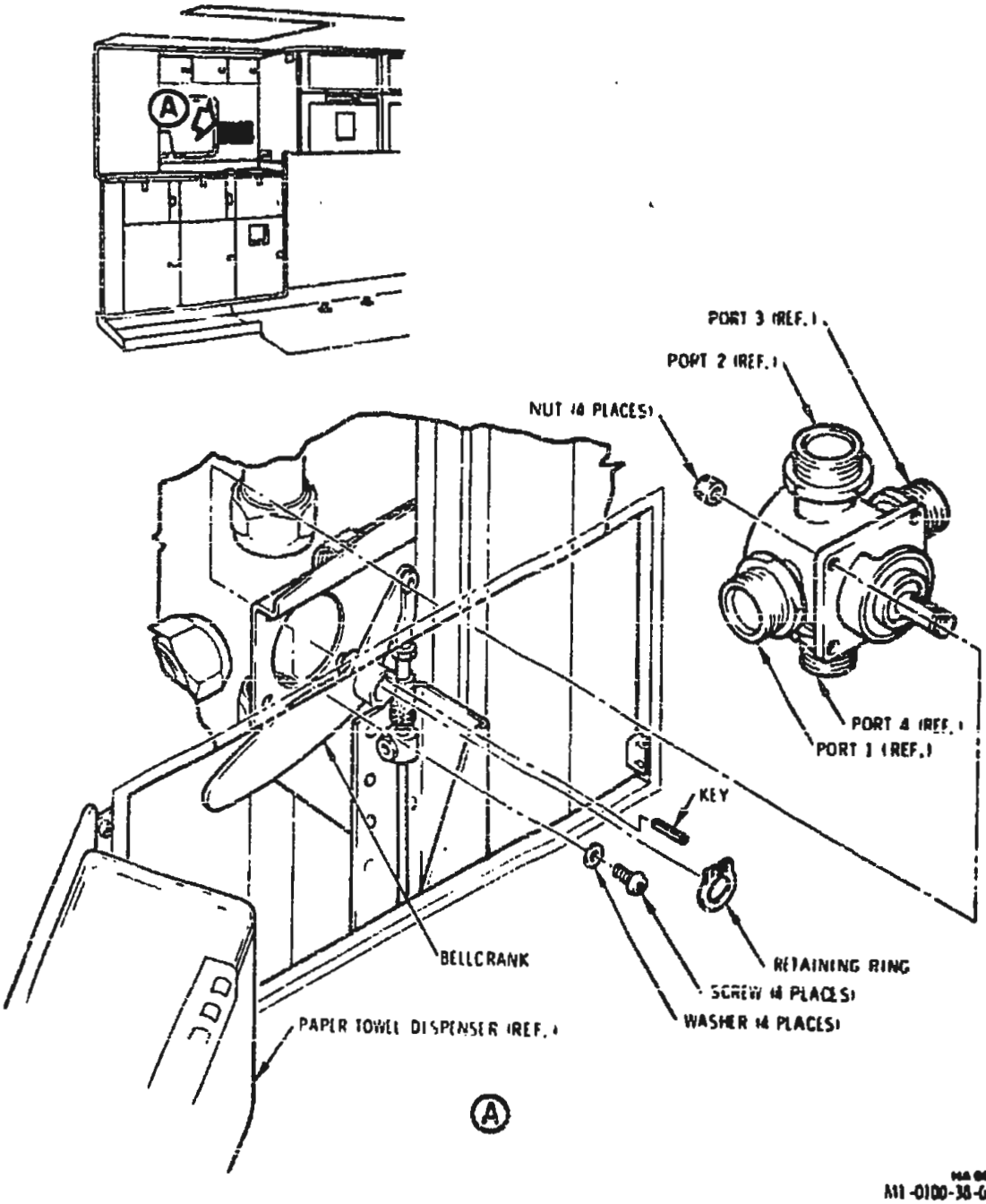
   (5) Disconnect plumbing lines to valve. Cap or plug lines and ports.

   (6) Remove screws, washers and nuts, and remove fill and overflow valve.

   B. Installation

   (1) Verify circuit breakers in Step 3A(1) are opened and tagged.

   (2) Install fill and overflow valve with screws, washers, and nuts. Valve ports will be positioned as follows:



R R Fill and Overflow Valve - Removal and Installation
Figure 401

R R EFFECTIVITY: ALL

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Port 1, to left; Port 2, up; Port 3, to right; Port 4, down (Ref. Fig. 401).

(3) Remove protective caps and plugs and install plumbing lines on valve.

(4) Rotate valve shaft so that keyway is at top of shaft (valve closed), and install control handle horizontally on shaft with key and retaining ring.

NOTE: It may be necessary for ground crewman to manipulate FILL/OVERFLOW VALVE control handle at ground service panel, zone 136.

(5) Remove any material used to secure cable [Ref. Step 2A(2)].

(6) Install galley compartment window and close and latch paper towel dispenser.

R R (7) Remove tags and close circuit breakers opened in Step 3A(1).

R # WATER FAUCET FLOAT - REMOVAL AND INSTALLATION

R 1. General

R The water faucet float removal and installation is similar for
R all faucets on the aircraft except for location.

R 2. Equipment and Material

R O-Rings

R 3. Removal and Installation

R A. Removal

R (1) Close applicable manual shutoff valve in water supply
R line.

R (2) Press ends of hinge pins toward each other, using a
R small diameter blunt instrument, until ends clear holes
R in faucet handle (Ref. Fig. 401).

R NOTE: Do not allow spring force to eject hinge pins
R from position when removing handle.

R (3) Remove retaining nut and remove hinge block.

R (4) Using spanner wrench, remove plunger assembly.

R (5) Remove plunger spring and remove plunger housing.

R (6) Remove and discard plunger housing O-ring.

R (7) Remove float assembly and discard O-ring. If float is
R retaining water, discard.

R B. Installation

R (1) Assemble O-ring on float and install float assembly
R into faucet body (Ref. Fig. 401).

R (2) Assemble O-ring on plunger housing and install plunger
R housing.

R (3) Install plunger spring.

R CAUTION: DO NOT STRIP PLUNGER NUT THREADS WHEN INSTALLING
R PLUNGER ASSEMBLY.

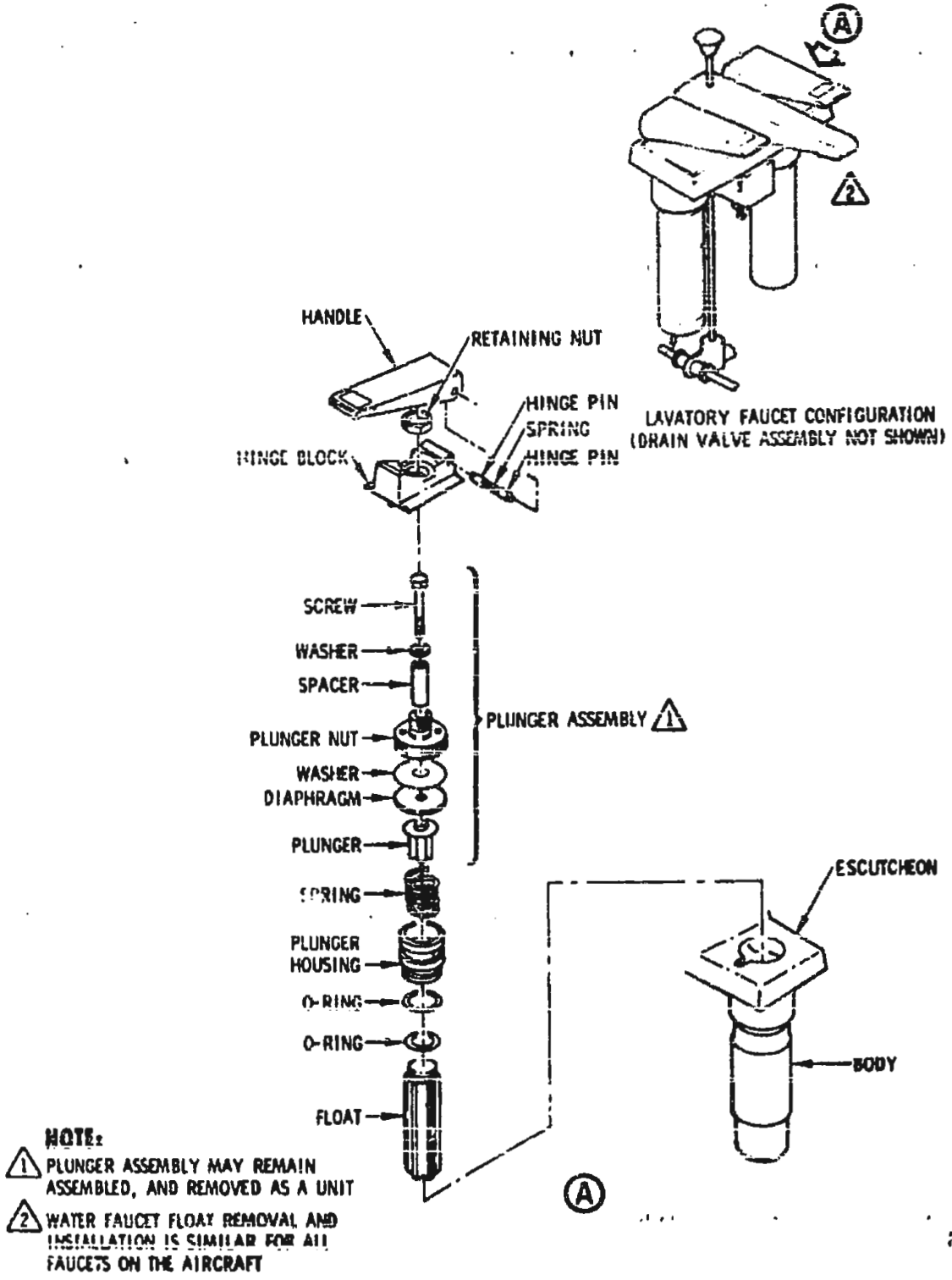
R (4) Install plunger assembly and tighten with spanner
R wrench.

R (5) Install hinge block and retaining nut.

R (6) Install hinge pins, spring, and handle.

R NOTE: Verify pins are locked securely in handle.

R (7) Open applicable water supply line manual shutoff valve.



R Water Faucet Float - Removal and Installation
R Figure 401

EFFECTIVITY: ALL

FILL AND OVERFLOW VALVE CABLE - REMOVAL AND INSTALLATION

1. General

A fill/overflow valve cable is installed in the aircraft to enable the remote operation of the fill/overflow valve from the ground service panel.

2. Referenced Procedure

38-41-00 Air Supply System - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers PASS. SERV BUS 3R WATER SYSTEM PRESSURIZATION 1 (G2) and 2 (G5).

(2) Open the potable water ground service panel access door at FS 729, zone 136, and pull remote control handle of fill/overflow valve to vent (depressurize) potable water tank air pressure. Tag fill/overflow valve remote control handle.

(3) Gain access to underfloor galley zone 130.

(4) To gain access to fill/overflow valve, unlatch and swing open paper towel dispenser, above galley sink (Ref. Fig. 401).

(5) With bellcrank in the CLOSED position, loosen cable lock bolt.

(6) At the potable water ground service panel pull remote control handle and withdraw cable from housing.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

(2) Open the potable water ground service panel access door at FS729, Zone 136, and install cable with teflon tube into housing.

CR NOTE: See Figure 401 for handle only installation.

(3) Close handle Guard.

(4) Gain access to underfloor galley, zone 130.

(5) On aircraft without SB38-047,
with the bellcrank of the fill/overflow valve in the CLOSED position, install cable end and tighten cable lockbolt and check for proper cable travel.

(5) On aircraft with SB38-047,
with bellcrank of fill/overflow valve in the CLOSED position, install cable, checking cable through inspection hole in locking block, and tighten cable lockbolt.

(6) On aircraft without SB38-047,
pull handle out to full extent of travel.

(6) On aircraft with SB38-047,
loosen nut number 1 and threaded sleeve (Ref. Fig. 401) to create 0.12 inch clearance between spring housing and clevis.

(7) On aircraft without SB38-047,
disconnect cable at quick release disconnect by sliding sleeve up.

(7) On aircraft with SB38-047,
loosen nut number 2 to create 0.20 inch clearance between nut number 2 and clevis.

(8) On aircraft without SB38-047,
check with cable disconnected that valve is in full OPEN position detent.

(8) On aircraft with SB38-047,
cycle valve to open and back to closed position from handle end, and relock.

(9) On aircraft without SB38-047,
reconnect cable disconnect.

(9) On aircraft with SB38-047,
check clearance dimensions again, adjusting nuts as necessary.

(10) On aircraft without SB38-047,
push handle into flight position.

(10) On aircraft with SB38-047,
tighten nut number 1.

(11) On aircraft without SB38-047, at potable water ground service panel, cycle fill/overflow valve remote control 'T' handle - three times.

(12) On aircraft without SB38-047, check for fully closed position bellcrank when remote control handle is up and latched by the handle guard.

(13) On aircraft without SB38-047, if fill/overflow valve does not operate properly, follow next steps to adjust for proper cable travel.

(a) Gain access to underfloor galley, zone 130.

(b) With fill/overflow valve in the CLOSED position, remove cotter pin located at fill/overflow bellcrank, and remove attaching pin.

(c) Loosen jam nut, and rotate clevis bolt for proper cable travel.

(d) Tighten jam nut.

(e) Install attaching pin, and safety with cotter pin.

(f) At potable water ground service panel, operate remote control handle to check for proper operation.

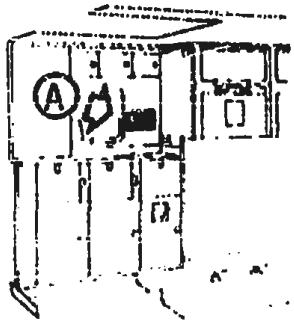
(14) Perform pull test at cable handle. Pull force is not to exceed 35 pounds.

(15) Close circuit breakers opened in Step 3A(1).

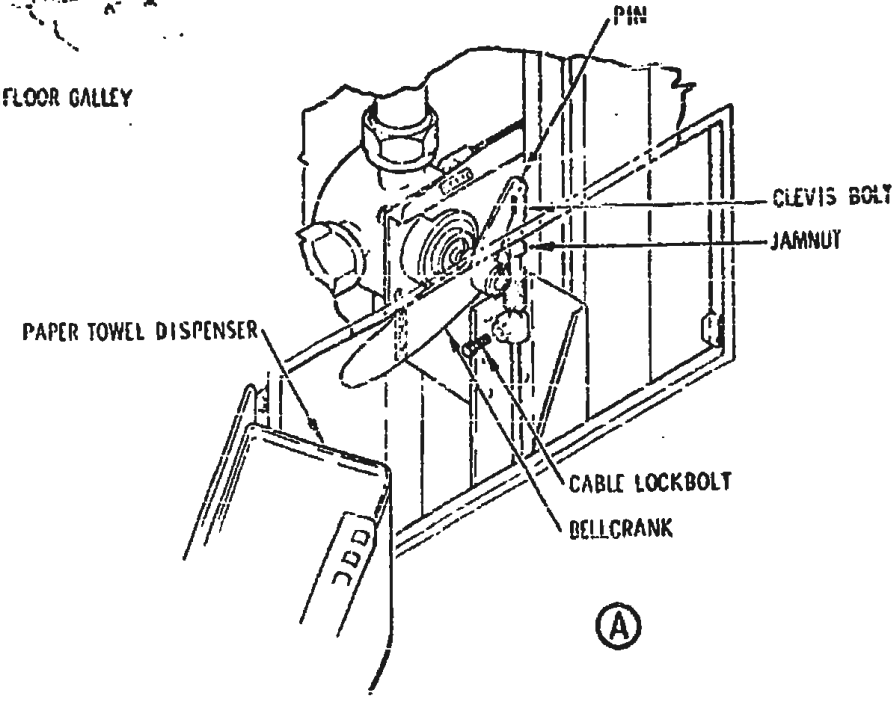
(16) Pressurize potable water tank (Ref. 38-41-00).

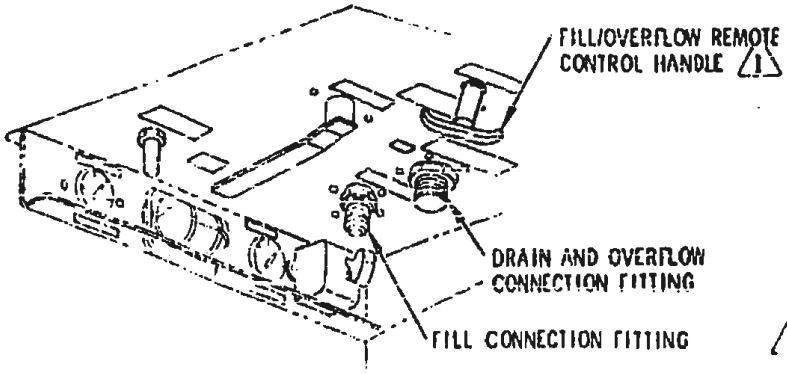
(17) Check for air leaks at ground service panel fill/overflow vent.

(18) Close access panels opened in Steps 3A(2) and (4).



UNDERFLOOR GALLEY





POTABLE WATER GROUND SERVICE PANEL (ZONE 136)

NOTE

1. HANDLE P/N 804573-1 STOCKED, WITH A 3/32 DIA PIN, IS A SEPARATE ITEM AND WILL REQUIRE DRILLING THE CABLE HOLE LARGER TO 0.093/0.097 DIA

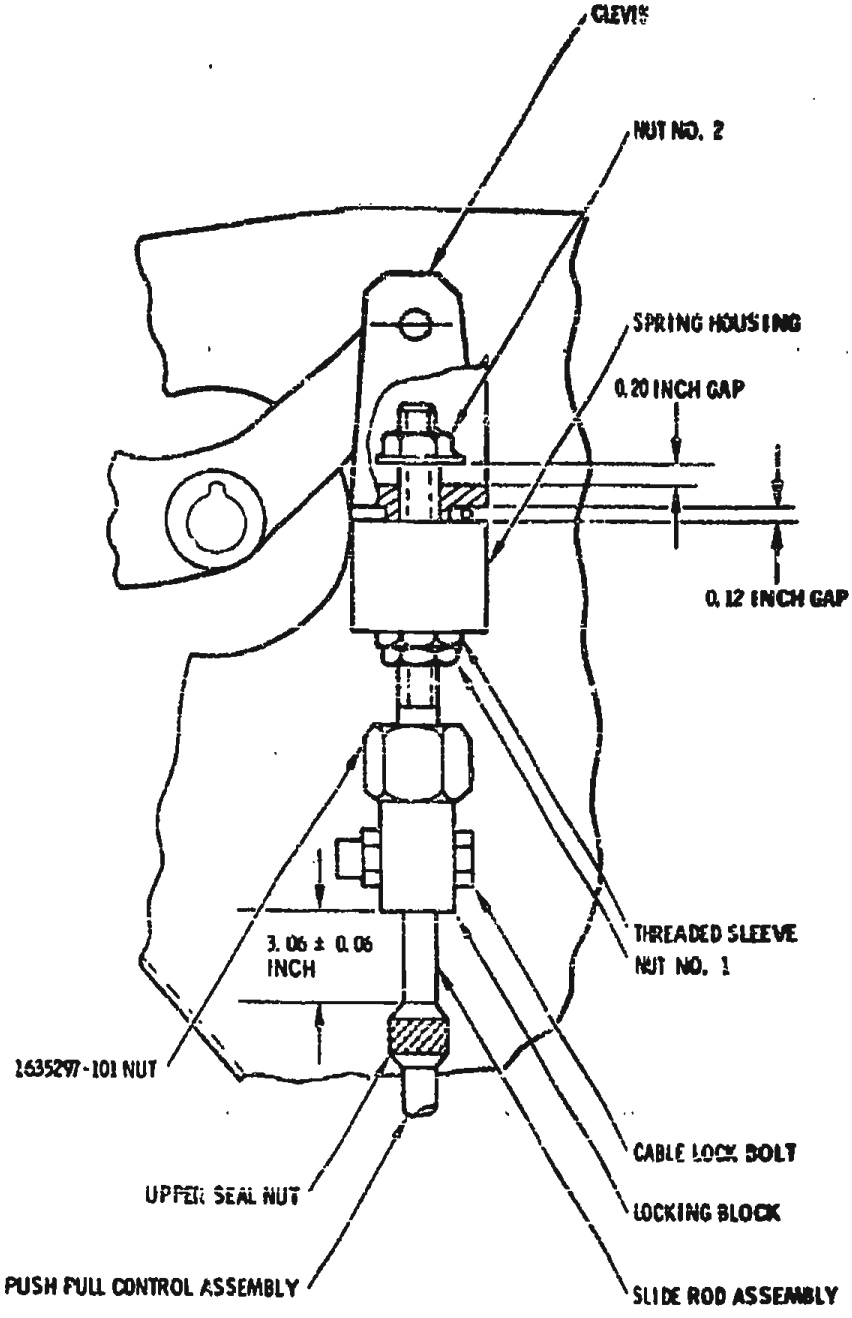
MI-0000-38-401

CR
CR
CR

Fill and Overflow Valve Cable
Removal and Installation
Figure 401

EFFECTIVITY: WITHOUT SB38-047

002B



M1-0000-38-000

R Fill and Overflow Valve Cable
R Removal and Installation
R Figure 401

R EFFECTIVITY: WITH SB38-047

0028

WATER STORAGE SYSTEM - DESCRIPTION AND OPERATION

1. General

The water storage system provides a supply of potable water for the drinking fountains and coffee makers in the passenger compartment. Water for the washbasins in the lavatories, and the sinks in the mid cabin service center and galley is also supplied from this same source (Ref. 38-11-00, Fig. 1).

The storage system consists of a potable water tank and trunnion quick-coupler straps. The straps hold the tank in position on tank support cradles.

The water storage tank is filled and drained through fittings on the potable water ground service panel, zone 136.

The water tank is filled with potable water only. The tank is pressurized with air (Ref. 38-41-00).

2. Potable Water Tank

A. Description and Operation

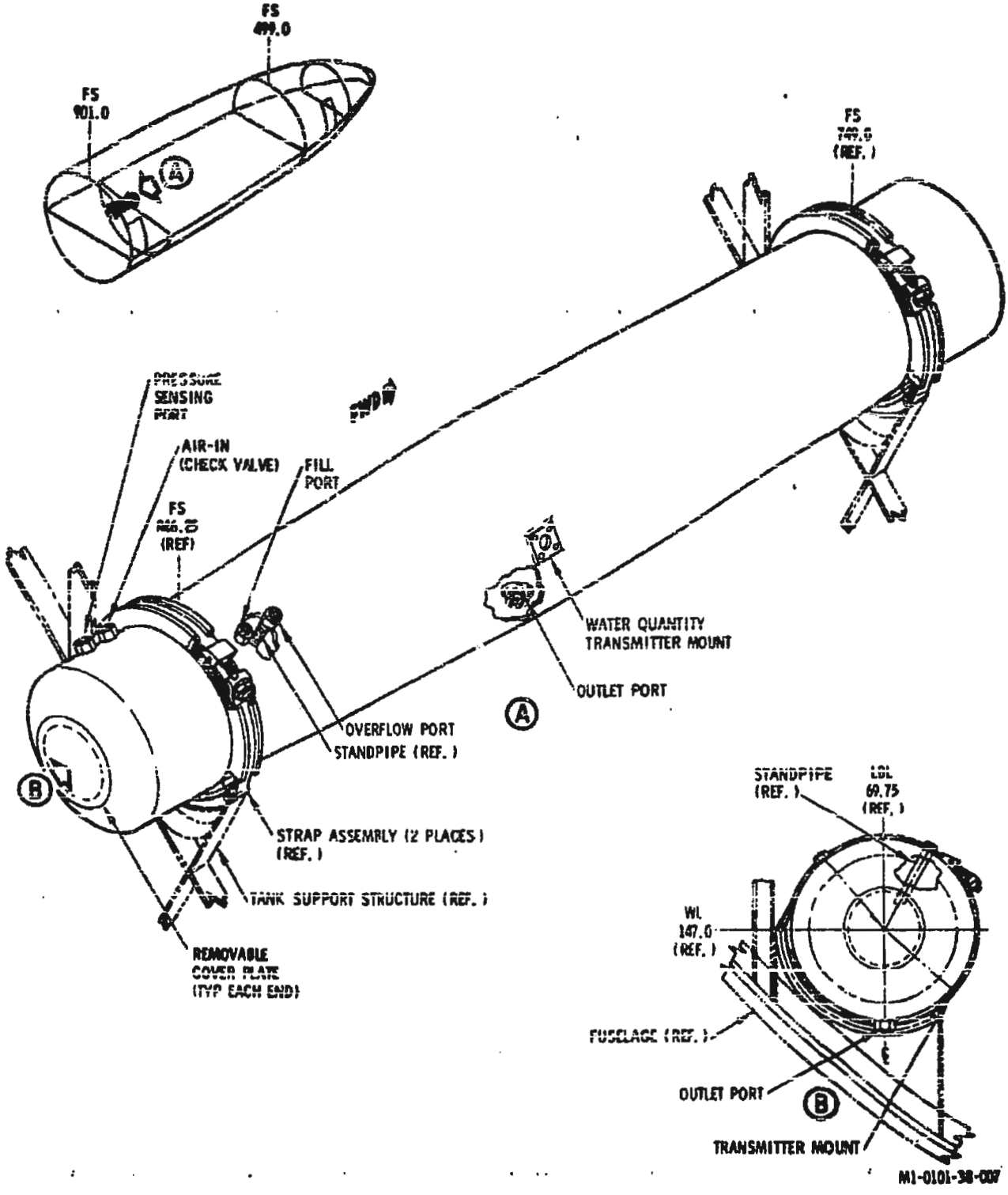
The tank is located in the left side compartment of the galley, zone 133. The tank is mounted on tank saddles that are secured to the aircraft structure. The tank is held in place by two trunnion quick-coupler straps. The tank is readily accessible for cleaning and replacement.

The exterior of the tank is made of filament-wound fiber glass. The interior is a permanent, jointless Acrylo-Nitrile Butidiene Styrene (ABS) liner. The cylindrical tank tapers from the center to a slightly smaller diameter at each end (Ref. Fig. 1).

The tank has a total capacity of 150 US (125 Imperial) gallons (567 liters). However, a standpipe limits the volume to 100 US (83.3 Imperial) gallons (378 liters).

The outlet port is located at the bottom of the tank on the longitudinal centerline. The tank has a removable cover plate at each end to provide access to clean the interior.

R A circumferential metal strap (electrode) is imbedded in the
R liner at the longitudinal centerline as an integral part of
R the potable water tank. Since the circumferential metal strap forms one side of a capacitor, it cannot be tested.



Potable Water Tank
Figure 1

This strap is part of the water quantity indicating system (Ref. 38-13-00).

Normal system pressure in the tank is 30 to 35 psig. The tank can withstand a maximum internal surge pressure of 188 psig and a maximum differential external pressure of 9 psig. The tank can be filled at normal terminal hydrant water pressure not exceeding 125 psig.

3. Trunnion Quick Coupler Strap

A. Description and Operation

Two trunnion quick coupler strap assemblies hold the potable water tank in cradles in the aircraft (Ref. Fig. 1).

Each complete strap assembly is identical and consists of two separate strap sub-assemblies. One end of each strap sub-assembly has a metal loop which is attached to the aircraft structure. The opposite end of one strap sub-assembly has a pivot bolt and a nut. The opposite end of the other strap sub-assembly has a pivot trunnion. An integral rubber extrusion on each strap sub-assembly prevents chafing of the tank.

The two straps of each complete strap assembly encircle the tank. The pivot bolt passes through the hole in the pivot trunnion and the nut is installed and tightened. The straps are drawn tight and secure the tank to the cradle.

POTABLE WATER TANK - MAINTENANCE PRACTICES

1. Equipment and Materials

O-ring, Parker Seal Company, PN 2-265, or equivalent

2. Referenced Procedures

12-15-01	Potable Water Tanks - Servicing
24-41-00	External Power/Ground Service System - Maintenance Practices
38-11-00	Potable Water Systems - Maintenance Practices
38-41-00	Air Supply System - Adjustment and Test

3. Tank Closure Removal and Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2, and WATER SYSTEM QTY/PRESS IND.

(2) Drain potable water tank as follows:

(a) Open POTABLE WATER SERVICE door, zone 136, and connect drain hose to POTABLE WATER DRAIN AND OVERFLOW CONNECTION.

(b) Remove cap from POTABLE WATER FILL CONNECTION.

(c) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE full out.

(d) Rotate SYSTEM DRAIN CONTROL HANDLE to OPEN and drain water into a suitable drainage facility or container.

(3) Remove serving carts stowed inboard of galley vertical side panels.

R (4) Remove vertical side panel 133CL for access to tank aft closure or 133AL for access to tank forward closure as follows:

(a) Turn panel attachment studs 90 degrees counterclockwise.

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

CAUTION: CLOSURE MUST BE REMOVED EVENLY AROUND THE CIRCUMFERENCE TO PREVENT DAMAGE TO THE TANK.

(5) Remove retaining ring (Ref. Fig. 201) from polar ring slot.

(6) Place finger tips inside closure lip and with a pulling action around outer circumference, remove closure from polar ring.

(7) Remove and discard O-ring.

B. Installation

(1) Make certain closure is clean including O-ring seating surface.

(2) Install new O-ring on closure.

(3) Make certain surface of polar ring is clean.

(4) Apply water to friction surface of O-ring and insert closure into polar ring.

(5) Tap closure with rubber mallet until firmly seated.

NOTE: Make certain O-ring is not dislodged, pinched, or damaged during assembly.

CAUTION: VERIFY THAT RETAINING RING IS INSERTED TO ITS MAXIMUM DEPTH IN POLAR RING GROOVE.

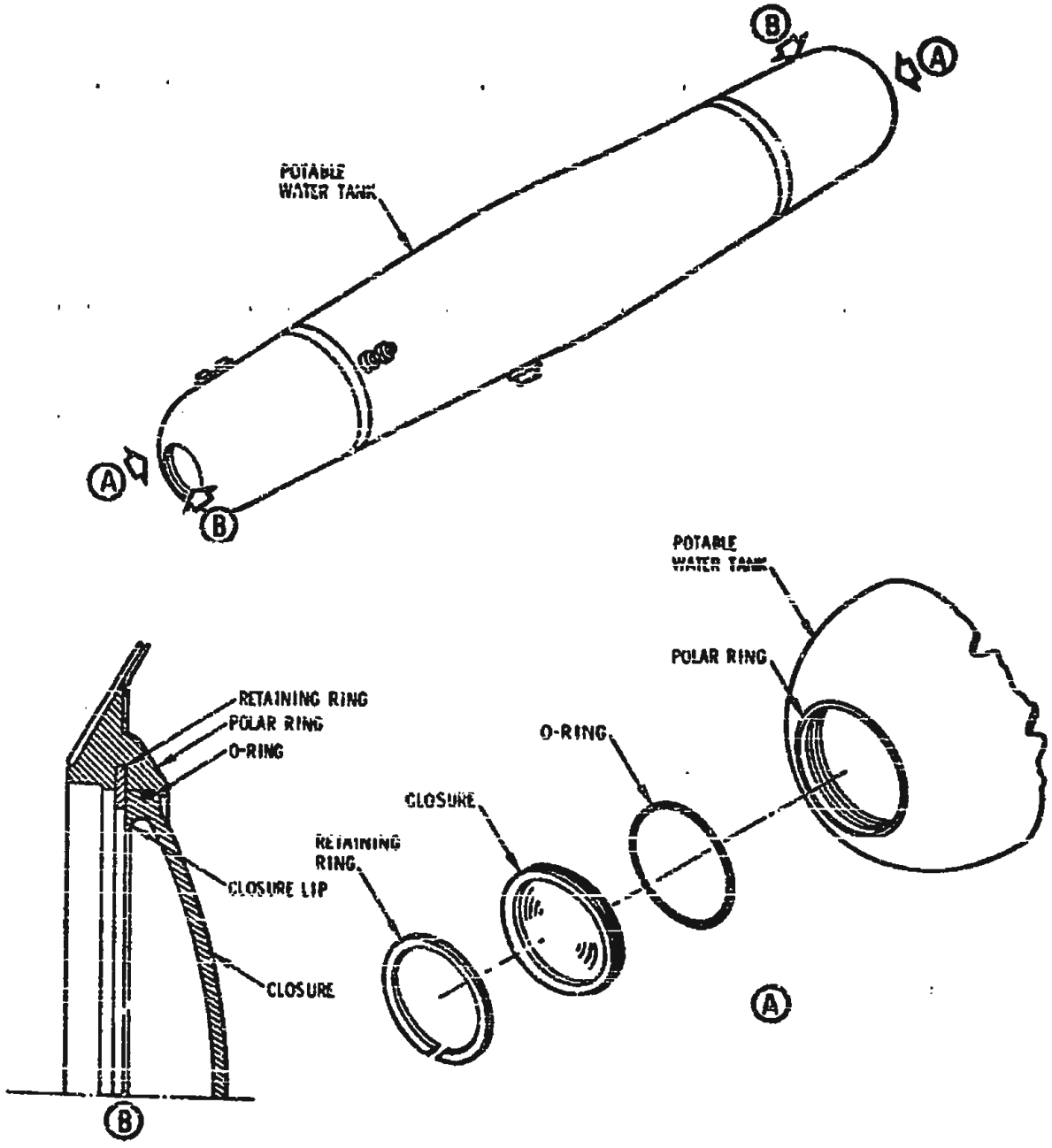
(6) Insert retaining ring into polar ring slot.

NOTE: Later tanks have retaining rings which have red band on ring up to insert depth. Be certain red band is not visible indicating proper retaining ring installation.

R

(7) Turn on electrical power (Ref. 24-41-00).

(8) On galley right circuit breaker panel, remove tags and close circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2, and WATER SYSTEM QTY/PRESS IND. Check quantity indicator for zero indication.



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Potable Water Tank Closure
Figure 201

(9) Fill tank with water (Ref. 12-15-01) and check full tank indication.

(10) Test potable water pressurization system as necessary to test tank closure for leakage (Ref. 38-41-00).

(11) Turn off electrical power (Ref. 24-41-00).

(12) Install applicable vertical side panel 133CL or 133AL.

(13) Return serving carts to stowed position.

(14) Sterilize tank as required (Ref. 38-11-00).

POTABLE WATER TANK - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective Plugs, LS12995-8, -12, -16, or equivalent

Protective Caps, LS12994-8, -12, -16, or equivalent

2. Referenced Procedures

12-15-01	Potable Water Tank - Servicing
24-41-00	External Power/Ground Service System - Maintenance Practices
38-13-00	Water Quantity Indication System - Adjustment and Test
38-41-00	Air Supply System - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2, WATER SYSTEM QTY/PRESS IND.

(2) Drain potable water tank as follows:

(a) Open potable water ground service panel door, zone 136, and connect drain hose to POTABLE WATER DRAIN AND OVERFLOW CONNECTION.

(b) Remove cap from POTABLE WATER FILL CONNECTION.

(c) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE full out.

(d) Rotate SYSTEM DRAIN CONTROL HANDLE to OPEN and drain water into a suitable drainage facility or container.

(3) Remove serving carts stowed inboard of galley vertical side panels (Ref. Fig. 401).

(4) Remove three vertical side panels as follows:

R (a) Turn attachment studs that secure either end panel
R to structure 90 degrees counterclockwise.

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

R (c) Repeat Steps 3A4(a) and 3A4(b) for opposite end panel.

(d) Loosen studs across bottom of center panel and remove panel [Ref. Step (b)].

(5) Disconnect outlet port ground wire.

R (6) On water tank, disconnect plumbing lines to fill port, overflow port, air-in port, check valve port on top aft end of tank, and outlet port at center on bottom surface of tank. Install protective plugs in tank ports and protective caps on disconnected plumbing lines.

(7) Disconnect electrical connector from water quantity transmitter.

(8) Remove bolts holding water quantity transmitter to boss in tank. Remove transmitter.

(9) Loosen and release each quick-coupler strap assembly. Rotate upper and lower straps of each strap assembly fully open.

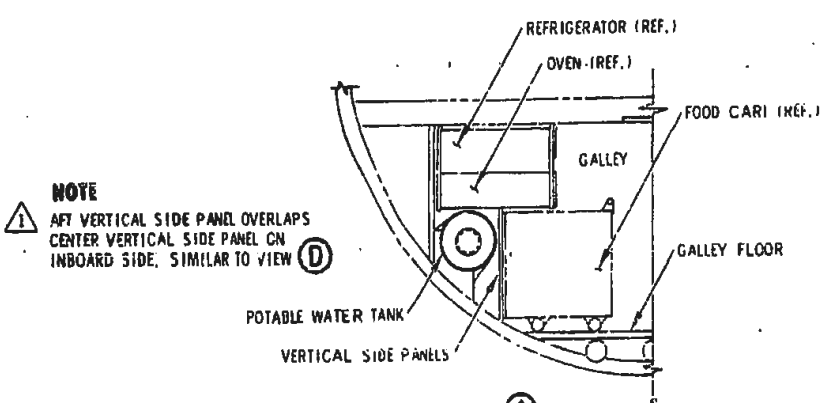
(10) Lift tank from saddles, rolling tank slightly inboard while lifting to clear straps and plumbing lines. (Tank weighs approximately 50 pounds).

B. Installation

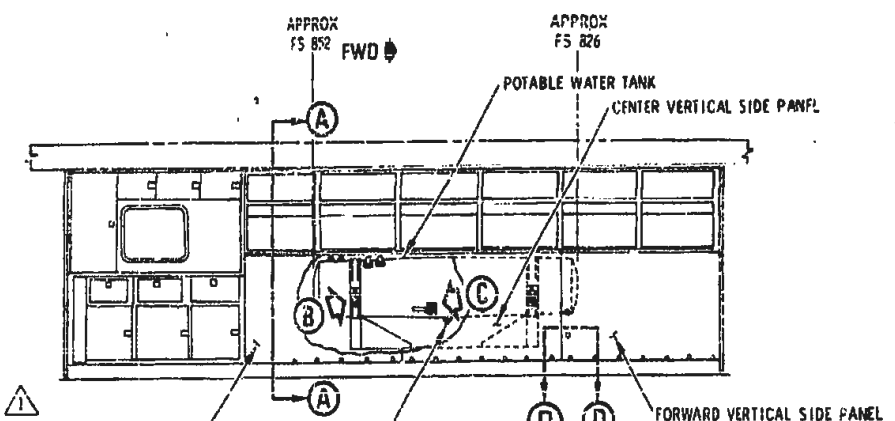
R (1) Position tank on galley floor with four ports on end of tank up and toward aft end of aircraft. Lift tank into saddles. Rotate tank to position outlet port (center of tank) down.

(2) Wrap quick-coupler straps around tank and attach quick-coupler latches to T-bolts. Torque nuts to
R required torque value after verifying tank is correctly seated in the saddles.

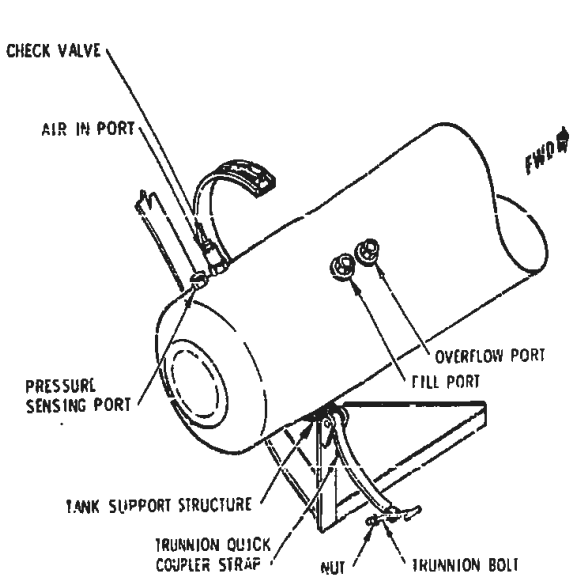
(3) Reinstall water quantity transmitter in boss on lower surface of tank and secure with bolts. Reconnect electrical connector to transmitter.

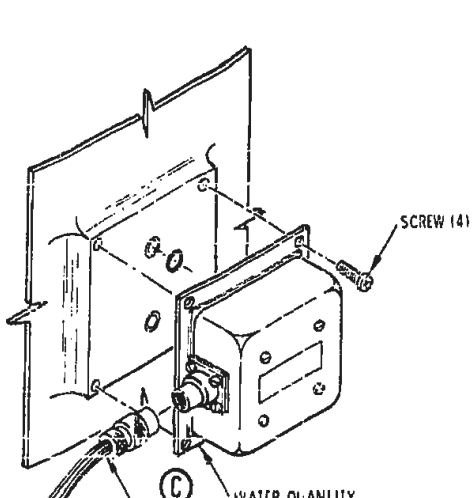


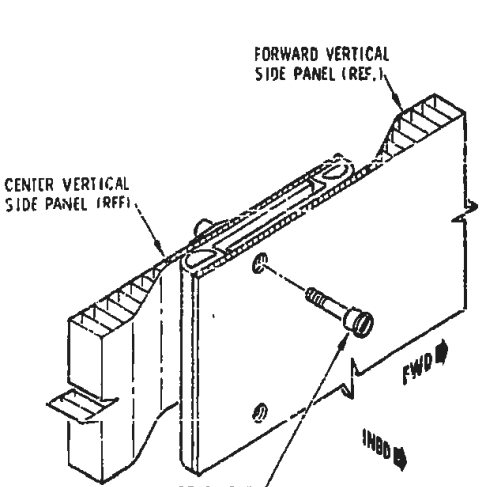
NOTE
1. AFT VERTICAL SIDE PANEL OVERLAPS CENTER VERTICAL SIDE PANEL ON INBOARD SIDE, SIMILAR TO VIEW (D)



LEFT SIDE OF GALLEY
VIEW LOOKING OUTBOARD
(FOOD CARTS REMOVED FOR CLARITY)







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R
R

Potable Water Tank Installation
Figure 401

EFFECTIVITY: ALL

001B

(4) Remove protective caps from plumbing lines and plugs from ports in tank. Reconnect plumbing lines to fill port, overflow port, air-in port, check valve port, and outlet port in tank.

(5) Reconnect outlet port ground wire.

(6) Turn on electrical power (Ref. 24-41-00).

(7) On galley right circuit breaker panel, close WATER SYSTEM QTY/PRESS IND circuit breaker and check applicable quantity indicator for zero indication. Adjust transmitter if required (Ref. 38-13-00).

(8) Fill tank with water (Ref. 12-15-01) and check full tank (100 gallons) indication.

(9) Test potable water pressurization system as necessary to test tank plumbing and fittings for leakage (Ref. 38-41-00).

(10) Turn off electrical power.

(11) Reinstall three galley left side vertical panels as follows:

R (a) Reinstall center panel first by tilting top of panel outboard (raise panel so top enters channel), and then push bottom of panel against structure.

(b) Move panel fore and aft, as required, to align stud in bottom edge of panel with receptacles on structure. Turn each stud 90 degrees clockwise to secure panel to structure.

(12) Reinstall either end panel. Turn studs in overlapping edge of panel to secure end panel to center panel. Reinstall other end panel.

(13) Return serving carts to stowed position inboard of vertical panels.

WATER QUANTITY INDICATING SYSTEM - DESCRIPTION AND OPERATION

1. General

The water quantity indicating system monitors the water level in the potable waterThe system operates on single phase 115V AC, 400Hz power supplied by passenger service bus 3 through the cabin overhead circuit breaker panel (CB4), zone 254. The same circuit also supplies the water pressure indicating system. The system is protected by the WATER SYSTEM QTY/PRESS IND circuit breaker (J13).

The water quantity the water level variation in potable water and transmits operating signals to the water quantity indicator.

2. Water Quantity Indicator

A. Description and OperationThe water quantity indicator is used to display the quantity of potable water in the potable waterThe major components of the indicator are cylindrical case assembly, meter assembly, pointer (with permanent magnet) and base on which are mounted a component board and electrical connector. The indicator has a non-illuminated dial face with pointer readout on a scale graduated from 0 to FULL with increments of 1/4, 1/2 and 3/4.

The water quantity indicator operates in conjunction with the water quantity the level of water in the potable water and produces a DC signal that may vary from zero to a negative one volt, indicative of water level in the potable Indicator pointer deflection is determined by current flow across the stationary DC-operated coil and permanent magnet of the water quantity indicator. The indicator is calibrated to indicate full-scale reading when no current is present across the stationary coil. The indicator does not have provisions for line-level adjustment.

3. Water Quantity Transmitter

A. Description and Operation

The water quantity transmitter is used to condition the signal from a sensor imbedded within the potable water tank. The transmitter consists primarily of a sealed case containing an electronic circuit board assembly. On one end of the case is an electrical connector. A single banana plug on the base of the transmitter mates with either of two

R capacitance-type sensors which are an integral part of the

potable water tank, each of which is terminated at the mounting boss by a banana plug receptacle. This feature precludes potable water tank replacement if one sensor fails. To disconnect a failed sensor and use the serviceable sensor, the transmitter is removed, rotated 180 degrees and reinstalled.

R A capacitive signal generated from a sensor imbedded in the potable water tank is fed to the water quantity transmitter
R through the banana plug. Since the sensor imbedded in the
R potable water tank forms one side of a capacitor, the sensor cannot be tested. This capacitive signal produces a DC signal that may very from zero to negative one volt, indicative of water level in the potable water tank. Capacitance reactance changes in direct ratio to the water level in the potable water tank. As potable water tank water level is varied the transmitter detects the changed sensor capacitance and transmits operating signals to the water quantity indicator which is located in the potable water ground serviceThe indicator pointer deflection is controlled by an integral DC-operated coil and permanent magnet. The indicator pointer indicates the water level in the potable water from 0 to FULL with increments of 1/4, 1/2 and 3/4.

WATER QUANTITY INDICATING SYSTEM - FAULT ISOLATION

1. General

The fault isolation diagrams in this section can be used for fault isolation any time a fault is reported or suspected. Before fault isolation is started, the PREREQUISITES listed on the diagram must be fulfilled.

If the flight crew reports a trouble using a FIRM Fault Code number, the number can be found in the FIRM Fault Code Cross Reference Table in the Chapter 38-INDEX.

The FIRM Fault Code Cross Reference Table includes the flight report (fault symptoms) and the exact Section, Figure, Sheet, and Block number where fault isolation should begin. (Refer to the L-1011 Maintenance Manual Introduction for a more detailed explanation on the use of fault isolation diagrams.)

If a fault is reported or suspected and no FIRM Fault Code is available, the function or fault indication can be found in the table below. When a diagram is selected in this manner fault isolation is started at Block 1.

2. Fault Isolation/Identification

Table 101 is a list of all fault isolation procedures and schematics. Figure 101 is a component location index and Figure 102 is a locator diagram for water quantity indicating sytem components.

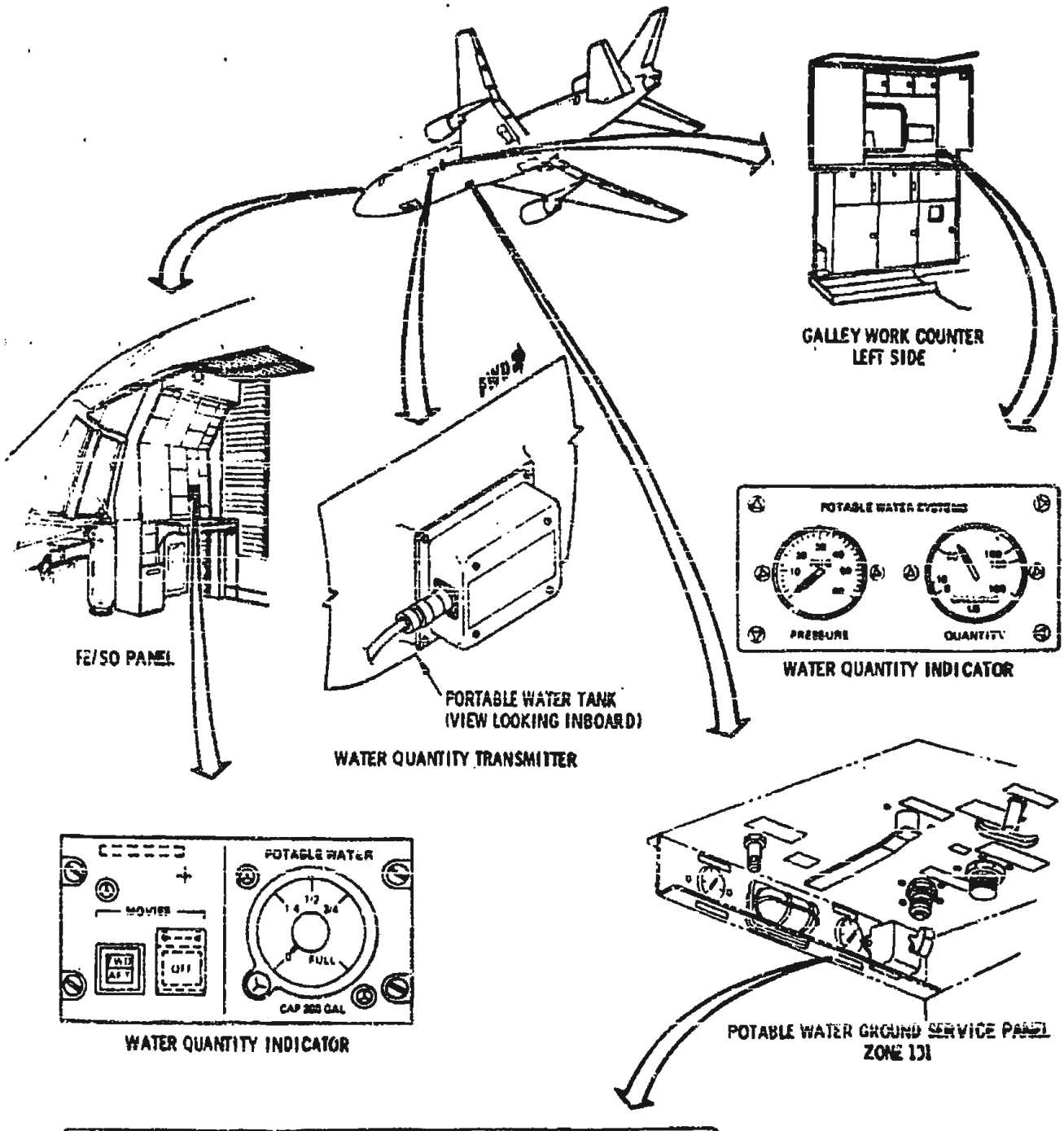
Water Quantity Indicating System Fault Isolation
Table 101

FIGURE	TITLE
103	Potable Water Quantity Indication Problems
P SCHEM 1	Water Quantity Indicating System Electrical Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
WATER QUANTITY INDICATOR	2	ONE, AT GALLEY WORK COUNTER ZONE 133	38-13-01
		ONE, AT POTABLE WATER GROUND SERVICE PANEL ZONE 136	38-13-01
WATER QUANTITY TRANSMITTER	1	POTABLE WATER TANK GALLEY LEFT SIDE COMPARTMENT	38-13-02

M1-0000-38-473

Component Location Index
Figure 101

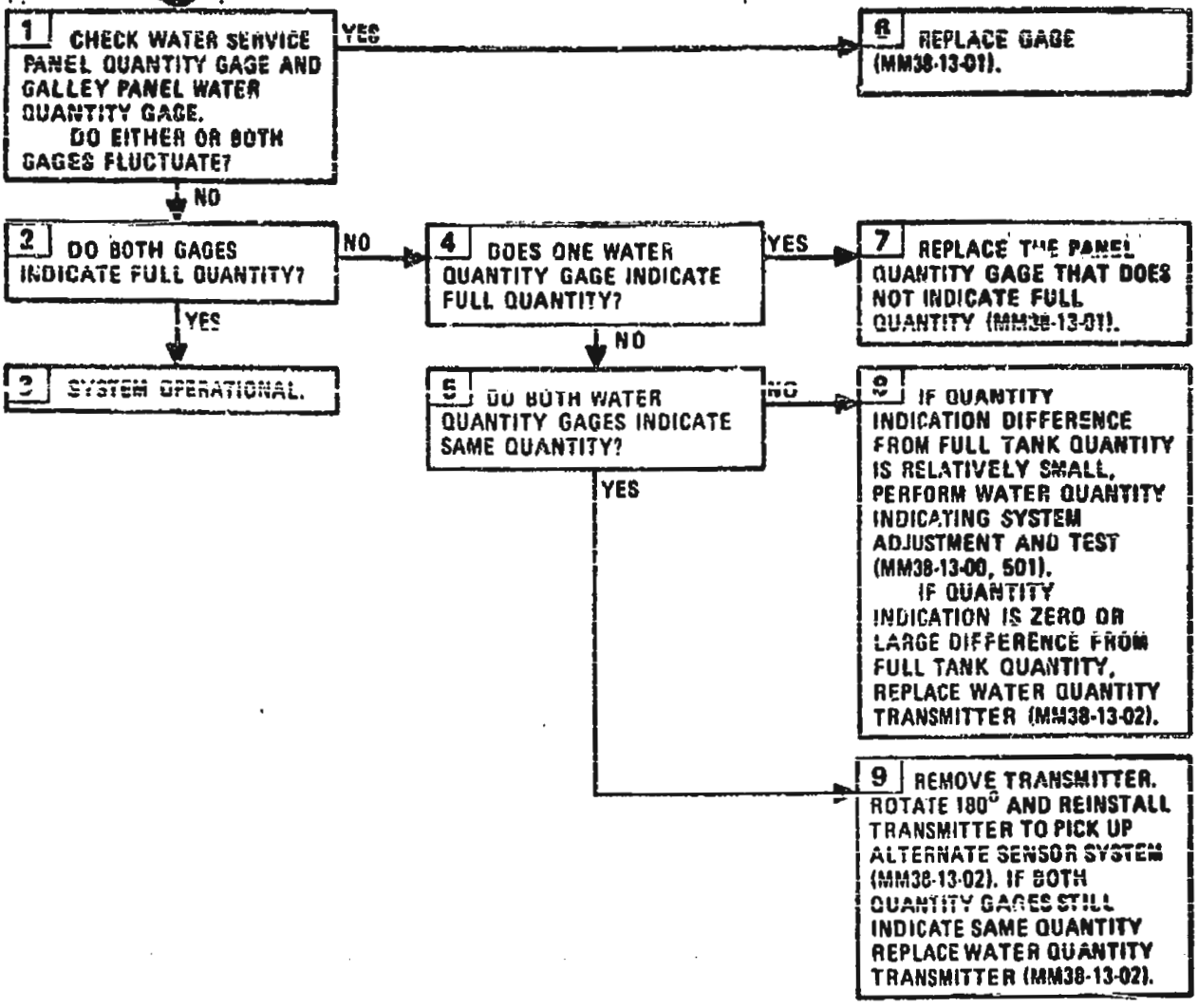


M1-0001-38-475

R Water Quantity Indicating System Component Locator
R Figure 102

POTABLE WATER QUANTITY INDICATION PROBLEMS

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
POTABLE WATER SYSTEM SERVICED (MM12-15-01)
CB'S: GALLEY RIGHT CIRCUIT BREAKER PANEL
WATER SYSTEM – QTY/PRESS IND (E1)


1 CHECK WATER SERVICE PANEL QUANTITY GAGE AND GALLEY PANEL WATER QUANTITY GAGE. DO EITHER OR BOTH GAGES FLUCTUATE?
YES
8 REPLACE GAGE (MM38-13-01).
NO
2 DO BOTH GAGES INDICATE FULL QUANTITY?
NO
4 DOES ONE WATER QUANTITY GAGE INDICATE FULL QUANTITY?
YES
7 REPLACE THE PANEL QUANTITY GAGE THAT DOES NOT INDICATE FULL QUANTITY (MM38-13-01).
YES
3 SYSTEM OPERATIONAL.
NO
5 DO BOTH WATER QUANTITY GAGES INDICATE SAME QUANTITY?
NO
6 IF QUANTITY INDICATION DIFFERENCE FROM FULL TANK QUANTITY IS RELATIVELY SMALL, PERFORM WATER QUANTITY INDICATING SYSTEM ADJUSTMENT AND TEST (MM38-13-00, 501). IF QUANTITY INDICATION IS ZERO OR LARGE DIFFERENCE FROM FULL TANK QUANTITY, REPLACE WATER QUANTITY TRANSMITTER (MM38-13-02).
YES
9 REMOVE TRANSMITTER. ROTATE 180° AND REINSTALL TRANSMITTER TO PICK UP ALTERNATE SENSOR SYSTEM (MM38-13-02). IF BOTH QUANTITY GAGES STILL INDICATE SAME QUANTITY REPLACE WATER QUANTITY TRANSMITTER (MM38-13-02).

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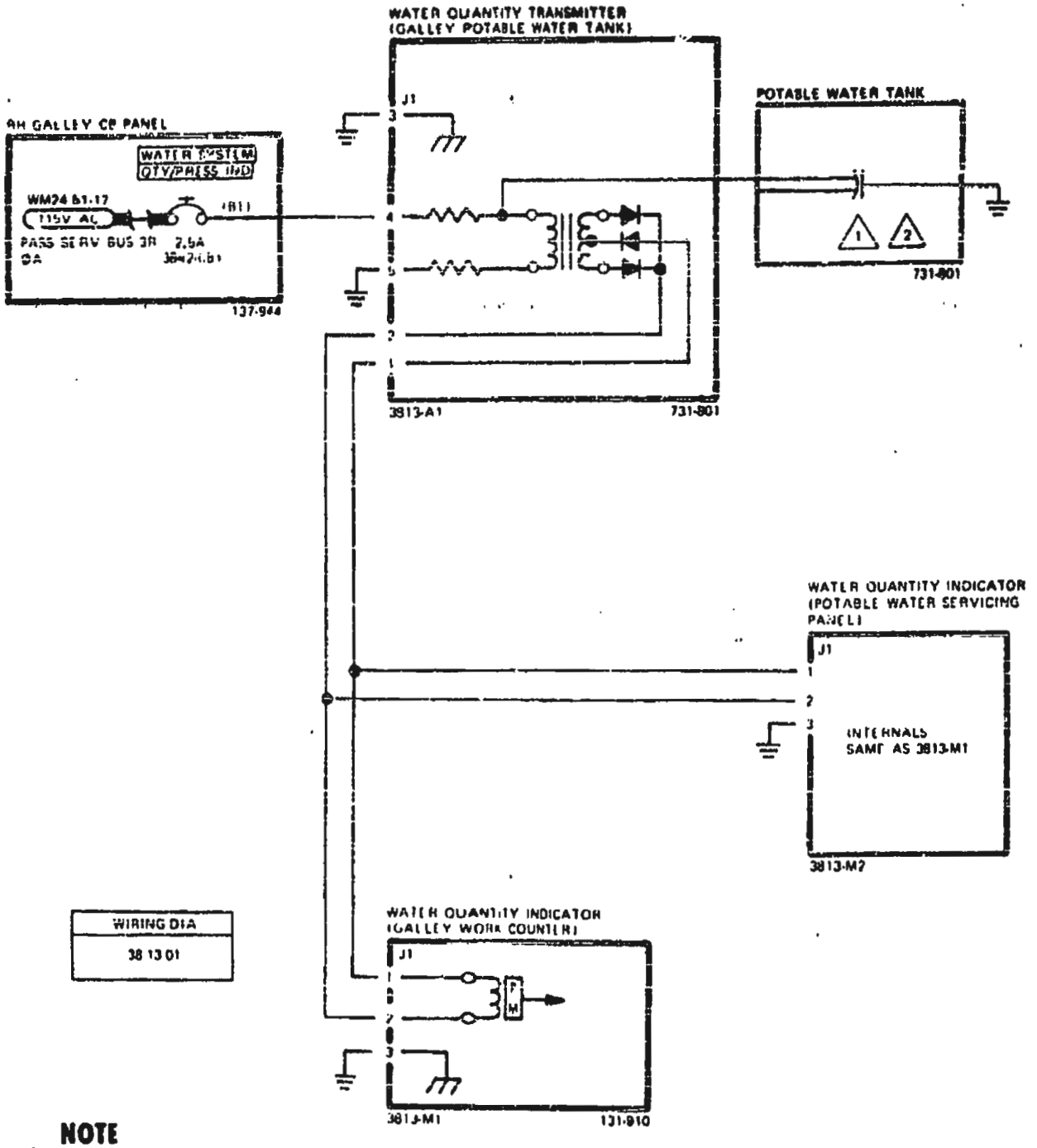
CR
CR

Potable Water Quantity Indication Problems
Figure 103

EFFECTIVITY: ALL

001B



NOTE

1. EMBEDDED SENSOR IN TANK ACTS AS FIXED CAPACITOR PLATE. WATER LEVEL ACTS AS VARIABLE PLATE
2. TWO SENSORS IN EACH TANK - ALTERNATE SENSOR MAY BE PICKED UP BY REMOVING TRANSMITTER, ROTATING 180° AND REINSTALLING

EM1-0000-38-871

CR Water Quantity Indicating System Electrical Schematic
CR SCHEM 1

EFFECTIVITY: ALL

001B

WATER QUANTITY INDICATING SYSTEM - ADJUSTMENT AND TEST

1. Equipment and Materials

Potable Water Service Cart

2. Referenced Procedure

	38-12-01	Potable Water Tank - Removal and Installation
R	6-40-00	Exterior Access Doors and Panels
R	12-15-01	Potable Water Tanks - Servicing
R R	24-41-00	External Power/Ground Servicing System - Maintenance Practices

R 3. Adjustment/Test

R A. Preparation

R (1) On galley right circuit breaker panel, zone 130, open R and tag the following circuit breakers:

R PASS SERV BUS 3R - WATER SYSTEM PRESSURIZATION 1 R (G2) and 2(G5)

R Verify that WATER SYSTEM QTY/PRESS IND (B1) R circuit breaker is closed.

R (2) Open potable water service panel access door 192F (Ref. R 6-40-00).

R (3) Remove protective cap and connect water supply hose to R water fill connector. Connect water drain hose to R POTABLE WATER DRAIN & OVERFLOW CONNECTION (Ref. R 12-15-01).

R (4) Pull SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE.

R (5) Place SYSTEM DRAIN CONTROL HANDLE to OPEN position. R Verify water quantity indicator pointers move smoothly R downscale as system drains. (Fluctuating pointers are R an indication of a faulty electrical ground and must be R corrected before indicator calibration is attempted.)

R (6) When all water has drained from system, place SYSTEM R DRAIN CONTROL HANDLE to CLOSE position.

(7) Remove panels to gain access to potable water tank (Ref. 38-12-01).

(8) Close two water tank emergency shutoff valves located below water tank.

NOTE: Droplets of water on transmitter sensor can prevent proper adjustment and calibration of indicating system at zero quantity reading. A minimum of 30 minutes, from time tank is drained, should be allowed for all water to drip off sensor element. Any moisture on inside wall may prevent a zero reading.

(9) Remove four transmitter case attach screws and carefully lift off case. Take care not to break wires between transmitter components board and connector attached to case (Ref. Fig. 501).

B. Adjustment

(1) Adjust resistor R9 (located next to transformer) for zero gallon indication on water quantity indicators.

(2) Meter 100 gallons of water into potable water tank.

R R R (3) Adjust resistor R13 (located next to 741C operational amplifier on transmitter components board) until water quantity indicators read 100 gallons.

NOTE: During draining of supply tank, quantity indicator needles should not fluctuate. If indicator needles fluctuate, it indicates system ground is faulty. Troubleshoot ground wire system.

(4) Reinstall transmitter case.

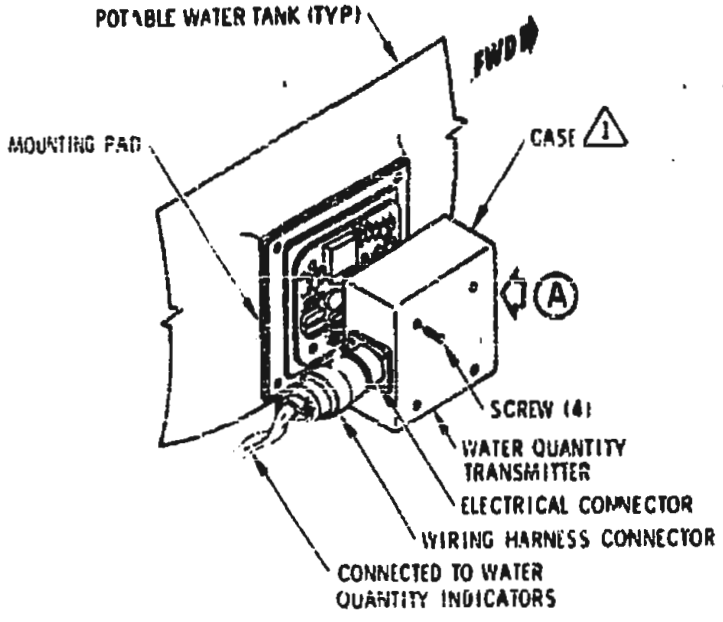
(5) Open two tank emergency shutoff valves closed in Step 3A(8).

(6) At water service panel, push in SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE and remove ground service hoses. Reinstall protective cap on fill connector and close water service panel access door.

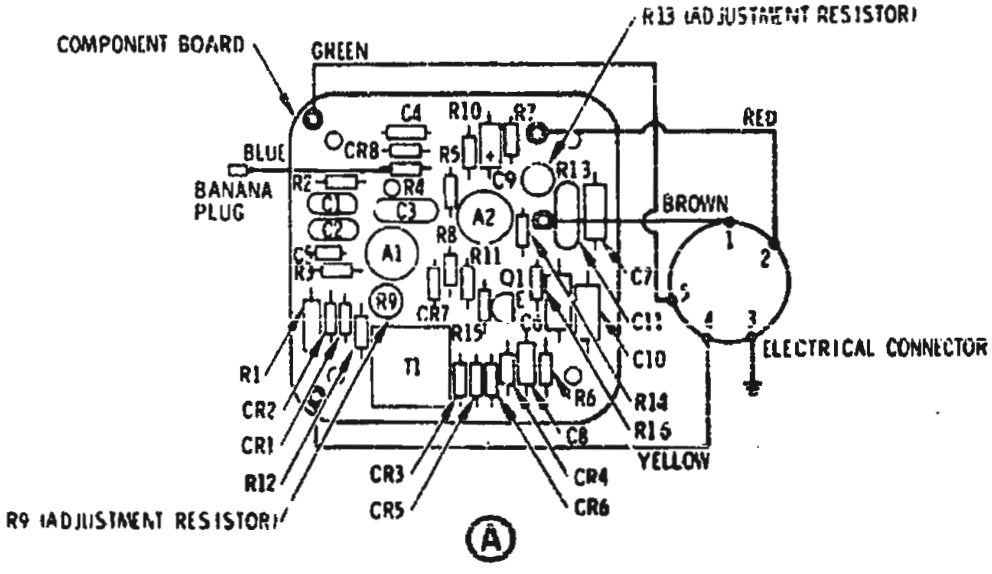
(7) Remove tag and close circuit breakers opened in Step 3A(1). Verify air supply system compressors operate and system pressurizes.

(8) Momentarily open each water fountain spigot to assure proper operation.

R (9) Reinstall panels removed in Step 3A(7).



WATER QUANTITY INDICATORS LOCATED AT WATER SERVICE PANEL AND ABOVE GALLEY SINK



CASE SHOWN REMOVED (TYPICAL FOR EACH TRANSMITTER)

NOTE:
1 USE CAUTION WHEN REMOVING CASE TO PREVENT BREAKAGE OF WIRES

M1-0000-28-670

R R Water Quantity Transmitter Adjustment
Figure 501

R R EFFECTIVITY: ALL

0018

WATER QUANTITY INDICATOR - REMOVAL AND INSTALLATION

1. Equipment and Materials

   Protective Cap

2. Referenced Procedure

   6-40-00 Exterior Access Doors and Panels

3. Removal/Installation

   A. Removal

      (1) On galley right circuit breaker panel, zone 130, open and tag circuit breaker WATER SYSTEM QTY/PRESS IND.

      (2) Locate and/or gain access to indicator to be removed (Ref. Fig. 401).

      NOTE: Open access door 192F (Ref. 6-40-00) to gain access to potable water service panel indicator.

R R (3) Loosen instrument mounting clamp by turning screw, to left of indicator, counterclockwise.

      (4) Withdraw indicator from panel and disconnect electrical connector.

      (5) Cap electrical connector.

   B. Installation

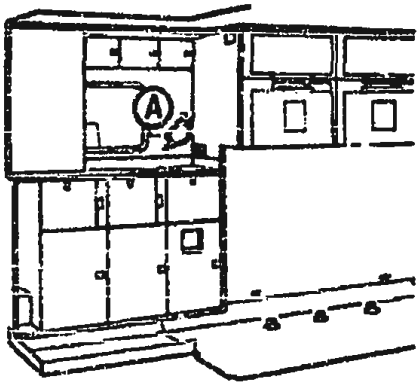
      (1) Remove cap from electrical connector and mate connector to indicator.

R (2) Insert indicator into applicable panel and position it properly against panel.

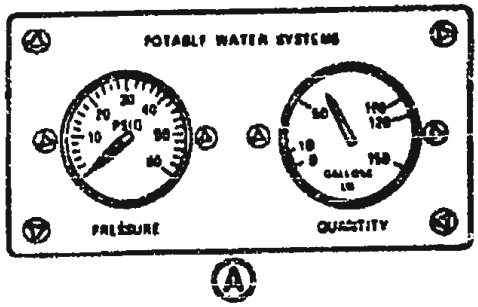
      (3) Secure indicator by tightening clamp screw. Close access door if necessary.

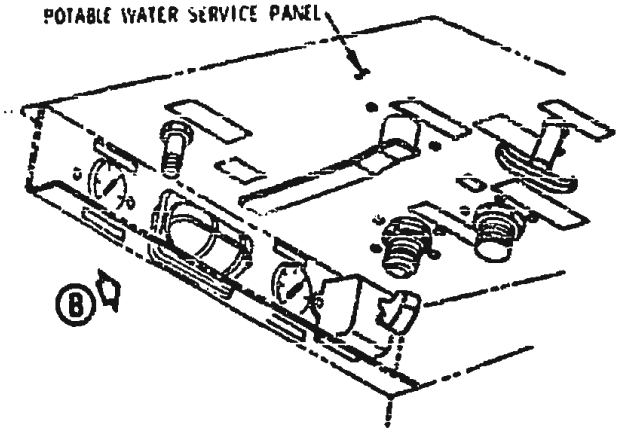
      (4) Remove tag and close circuit breaker opened in Step 3A(1).

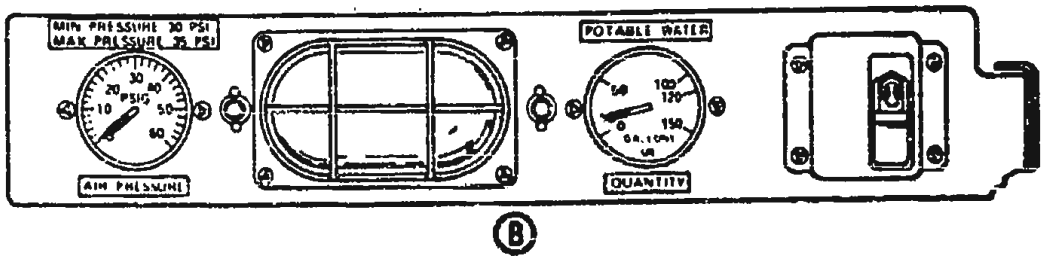
      (5) Verify that indicator reads same water quantity as other water quantity indicator (Ref. Fig. 401).



GALLEY WORK COUNTER
(LEFT SIDE)







A11-2202-38-009

R Water Quantity Indicator
R Figure 401

R EFFECTIVITY: ALL
R
001

WATER QUANTITY TRANSMITTER - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps and plugs

O-ring packing (Ref. Fig. 401)

Grease, MIL-G-4343,or equivalent

2. Referenced Procedure

38-13-00 Water Quantity Indicating System - Adjustment and Test

3. Removal/Installation

A. Removal

R (1) On
R galley right circuit breaker panel, zone 130, open and tag circuit breaker WATER SYSTEM QTY/PRESS IND.

(2) Remove serving carts stowed inboard of galley left
R vertical side panels, and remove vertical side panel as
R follows:

(a) Turn attachment studs that secure either end panel to structure 90 degrees counterclockwise.

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

(c) Repeat Steps 3A(3)(a) and 3A(3)(b) for opposite end panel.

(d) Loosen studs across bottom of center panel and
R remove panel [Ref. Step 3A (3)(b)]. (3) Locate
R water quantity transmitter or cover inboard side
R of potable water tank.

R (4) Disconnect electrical connection from water quantity
R transmitter; remove (4) screw, and remove transmitter from potable water tank (Ref. Fig. 401).

B. Installation

(1) Verify circuit breaker opened in Step 3A(1) is open and tagged.

CAUTION: DO NOT DAMAGE O-RING PACKING.

(2) Coat new O-ring packing lightly with grease, and install.

(3) Install water quantity transmitter on potable water tank with four screws.

(4) Connect wire harness connector to transmitter receptacle.

(5) Perform water Quantity Indicating System Adjustment and Test (Ref. 38-13-00).

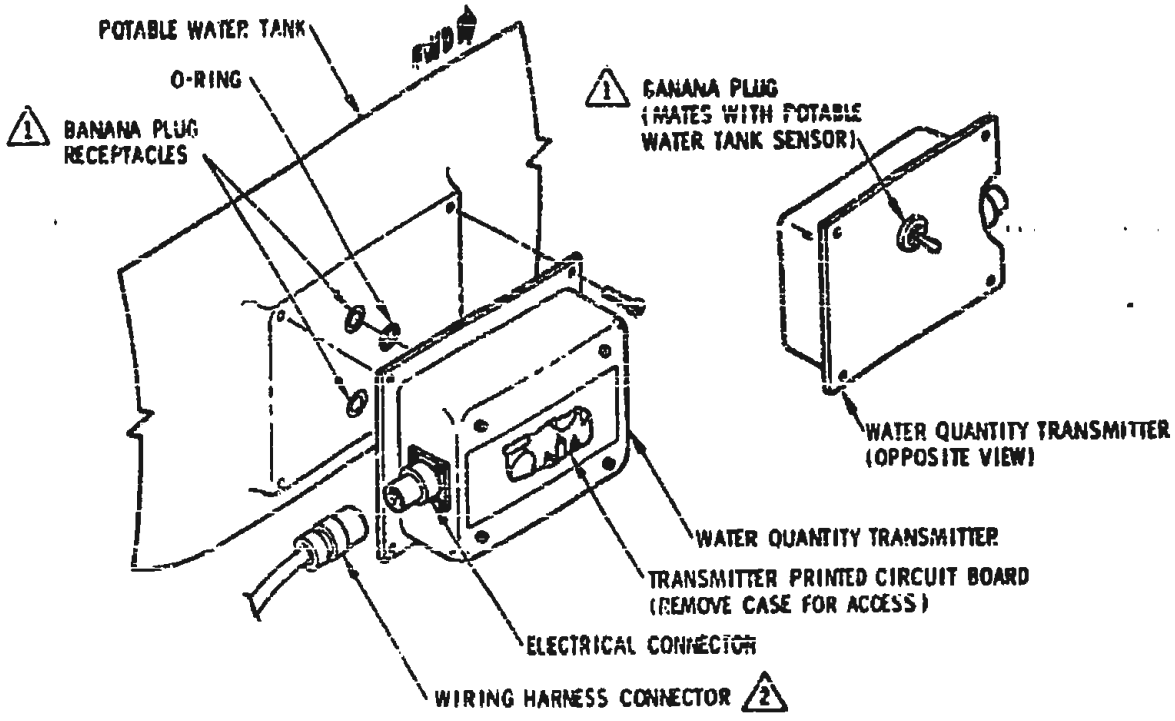
(6) Reinstall galley left side vertical panels as follows:

(a) Reinstall center panel by tilting top of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Reinstall either end panel. Turn studs in overlapping edge of panel to secure panel to center vertical panel. Reinstall other end panel.

(7) Return serving carts to stowed position inboard of vertical side panels.

(8) Remove tag and close circuit breaker opened in Step 3A(1).


POTABLE WATER TANK
O-RING
1 BANANA PLUG RECEPTACLES
1 BANANA PLUG (MATES WITH POTABLE WATER TANK SENSOR)
WATER QUANTITY TRANSMITTER (OPPOSITE VIEW)
WATER QUANTITY TRANSMITTER
TRANSMITTER PRINTED CIRCUIT BOARD (REMOVE CASE FOR ACCESS)
ELECTRICAL CONNECTOR
WIRING HARNESS CONNECTOR 2

NOTE

1. A SINGLE BANANA PLUG IN BASE OF TRANSMITTER MATES WITH ONE OF TWO RECEPTACLES IN MOUNTING PAD. THIS PERMITS 180° ALTERNATE INSTALLATION OF TRANSMITTER FROM POSITION SHOWN
2. WIRING HARNESS IS CONNECTED TO WATER QUANTITY INDICATORS

M1-0001-38-293

R Water Quantity Transmitter - Removal and Installation
R Figure 401

WASTE DISPOSAL SYSTEM - DESCRIPTION AND OPERATION

1. General

The waste disposal system processes and stores waste matter from the aircraft toilets.

The complete waste disposal system consists of a forward lavatory waste system and an aft lavatory waste system. The two systems are identical, except for size and location.

The forward lavatory waste system (Ref. Fig. 1) serves a toilet in each of two separate lavatory compartments located in the forward end of the passenger compartment, zones 221 and 222.

The aft lavatory waste system (Ref. Fig. 2) serves a toilet in each of five separate lavatory compartments located in the aft end of the passenger compartment.

Each lavatory waste system includes a waste tank, toilet flushing system, ground servicing capability and waste system
CR venting provisions.

The toilet flushing system is a recirculating type. A dye-deodorant-disinfectant chemical solution flushing fluid in the waste tank is filtered and pumped to the toilet bowl assemblies. Each lavatory includes a toilet flushing handle with a built-in control switch, and a flushing control valve. Three motor-pump-filter-cartridge assemblies (MPFCA) are installed on each waste tank. Each tank manifold includes a pressure switch. The flushing duration of each individual toilet is controlled by a solid state timer in a control logic system.

On aircraft 001-031 without SB38-032,
the waste tanks are serviced through ground service panels located at zones 113 and 167. Each service panel includes a
C service light, drain port, and a ground service flushing port. The drain port is a 4-inch fitting assembly with a hinged cap. The flushing port is a 1-inch nipple assembly. A check valve in the waste tank prevents reverse flow of the flushing fluid. The waste disposal systems use corrosion-resistant materials. The areas where the waste tanks and plumbing are installed are heated to prevent freezing. The waste system components, however, can withstand repeated freezing without damage. The drain lines can withstand the full cabin differential pressure without collapsing.

On aircraft 001-031 with SB38-032 and 032-999
the waste tanks are serviced through ground service panels

located in zones 113 and 167. Each service panel includes a
C service light, drain port, and a ground service flushing port.

The drain port is a 4-inch fitting assembly with a hinged cap. The flushing port is a 1-inch nipple assembly. A check valve in the waste tank prevents reverse flow of the flushing fluid.

An auto agitation system nozzle located at the right side of the waste tank and connected to the toilet flush line, provides the flush fluid to agitate the solid materials around the MPFCA. The auto agitation system provides a more efficient flushing cycle and easier servicing. The waste disposal systems use corrosion-resistant materials. The waste disposal system components are located in heated areas or protected by heating elements to prevent freezing. Aircraft parked for a prolonged time in subfreezing weather should drain waste disposal system to prevent possible freezing. The waste system components, however, can withstand repeated freezing without damage. The drain lines can withstand the full cabin differential pressure without collapsing. Pump failure warning lights are mounted on the Flight Engineer/Second Officers console (Ref. Fig. 3).

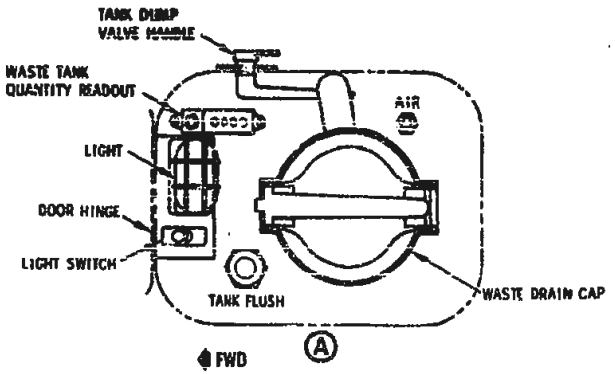
NOTE: On aircraft with SB38-054 and SB38-055, the auto agitation system is deleted.

2. Operation

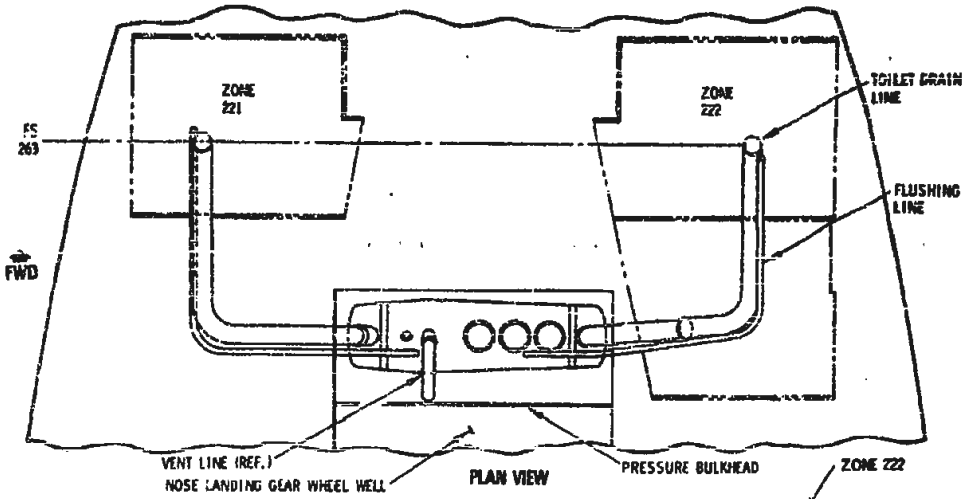
The waste forward and aft disposal system operation (Ref. Fig. 4) begins when the toilet flush control handle, in any of the lavatories, is actuated and released. The toilet flushing control switch completes the circuit to open the flushing solenoid valve. At the same time, the control logic unit
CR supplies power to operate a MPFCA and sets the 18-second
CR electronic timer for the flushing cycle. The timer is bypassed if the flush control handle is held down continuously.

CR After 18 seconds of flushing, the flushing valve closes and shuts off the flow of flushing fluid to the toilet. The relay switch contacts open and disconnect the 115/250V ac 400 Hz 3-phase power to the pump motor.

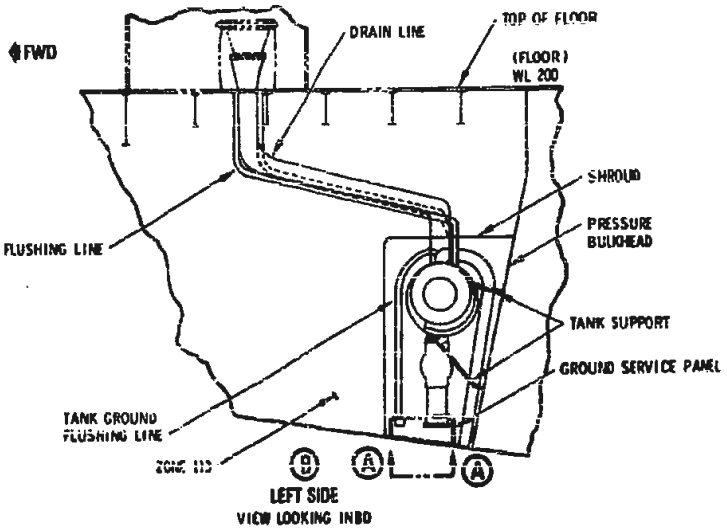
Three MPFCA are located on each of the forward and aft waste tank. Each MPFCA can supply sufficient fluid pressure to flush five toilets simultaneously. A pressure switch is installed in the manifold, to which the flushing line, of each toilet, is connected. When a toilet is flushed, the pump pressurizes enough fluid to satisfy the preset pressure requirements. The balance of the fluid is bypassed back through the MPFCA. When more than one toilet is flushed, the amount of fluid bypassed becomes correspondingly less. If manifold pressure drops below the minimum preset level, another MPFCA is, automatically,



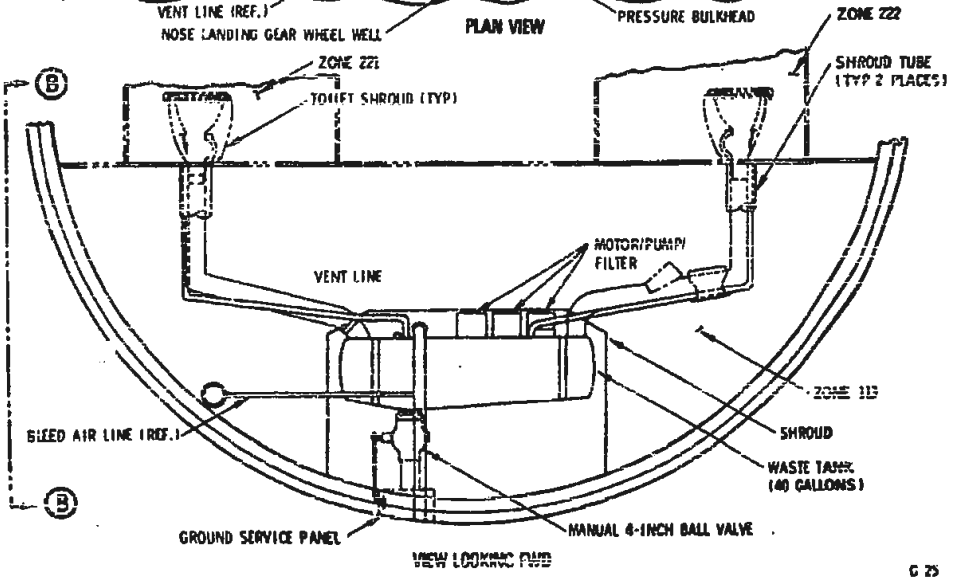
FORWARD WASTE TANK SERVICE PANEL



PLAN VIEW



LEFT SIDE
VIEW LOOKING INBD

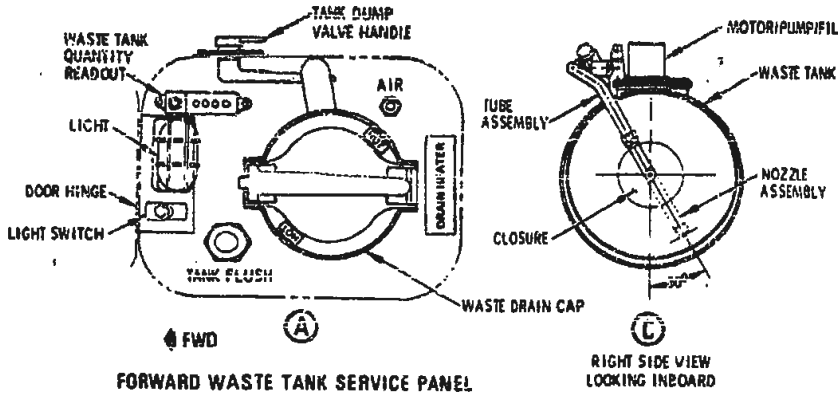


VIEW LOOKING FWD

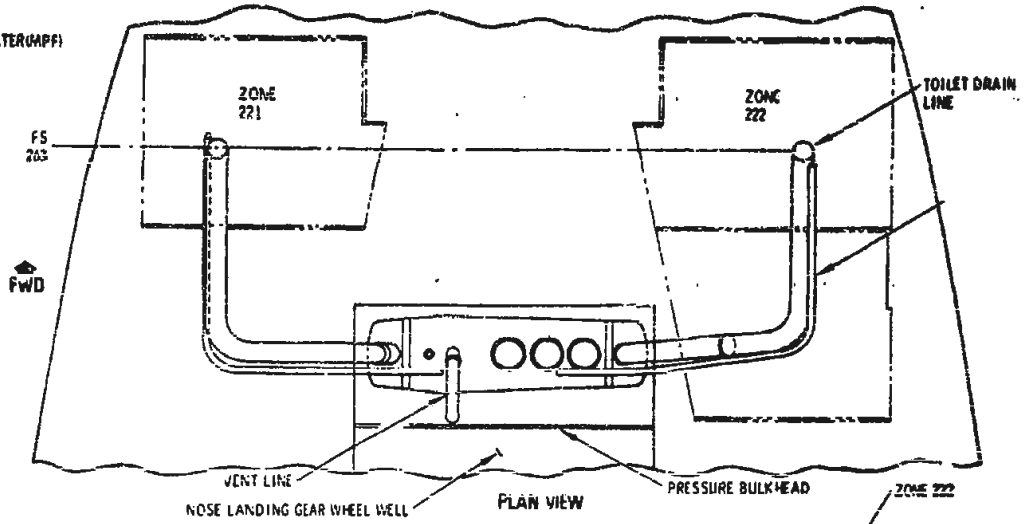
G 25
A11-1802-38-012

Forward Lavatory Waste System
Figure 1

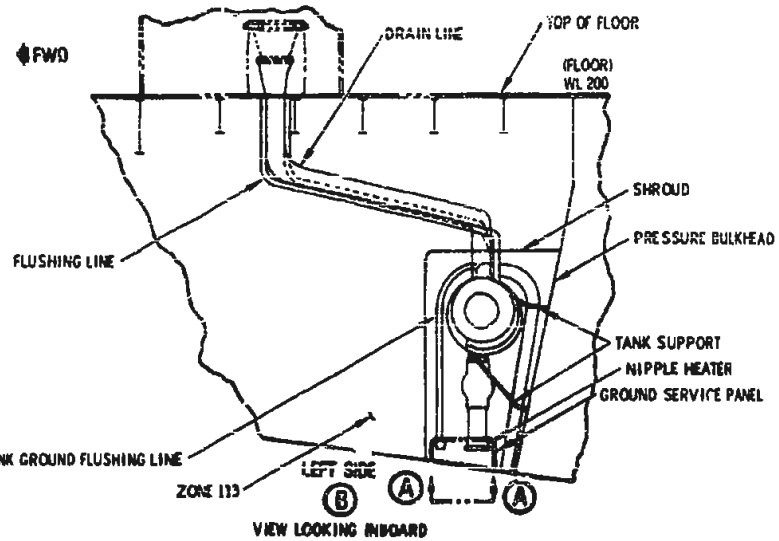
R EFFECTIVITY: 001-031 WITHOUT SB38-032 AND
R SB30-050
0018

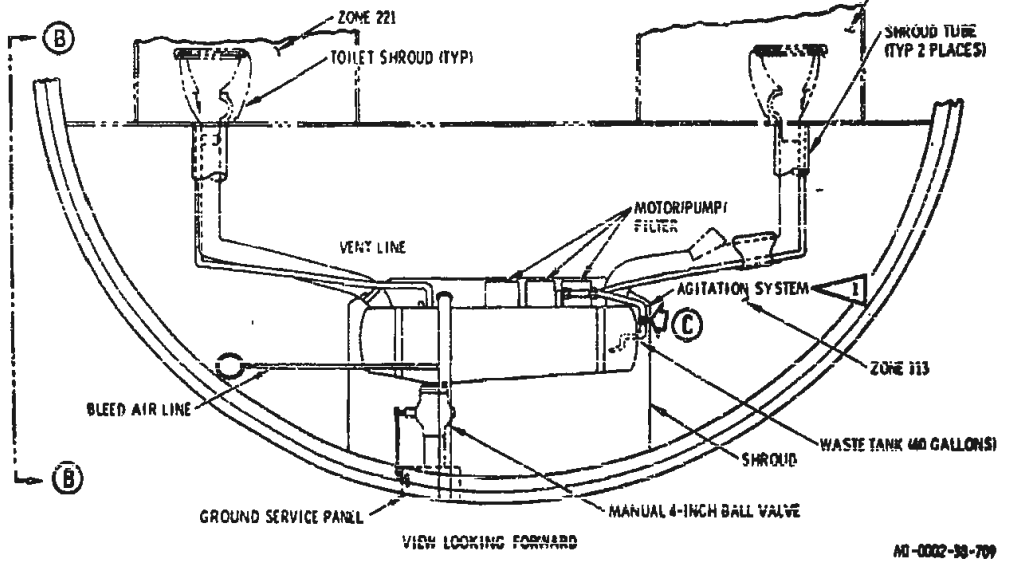


FORWARD WASTE TANK SERVICE PANEL



1 **NOTE**
DELETED AFTER INCORPORATION OF SB 38-054 AND 38-055



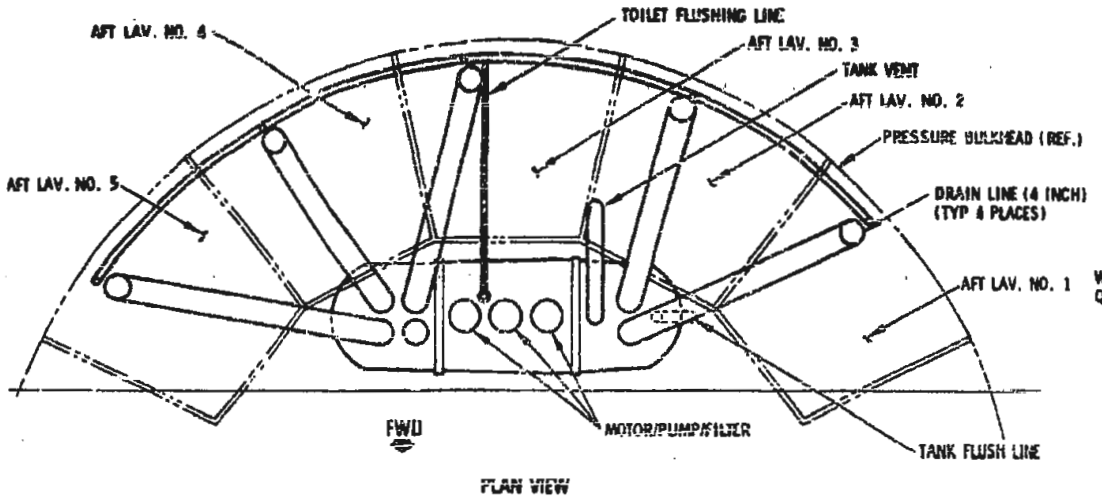


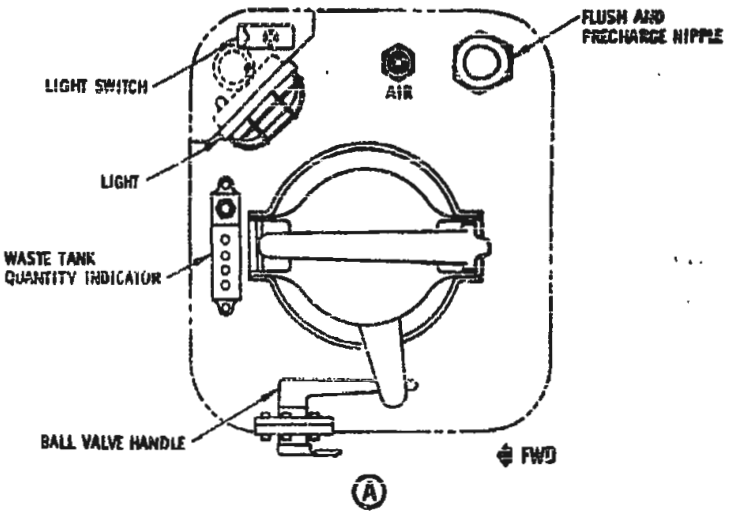
R
R
R

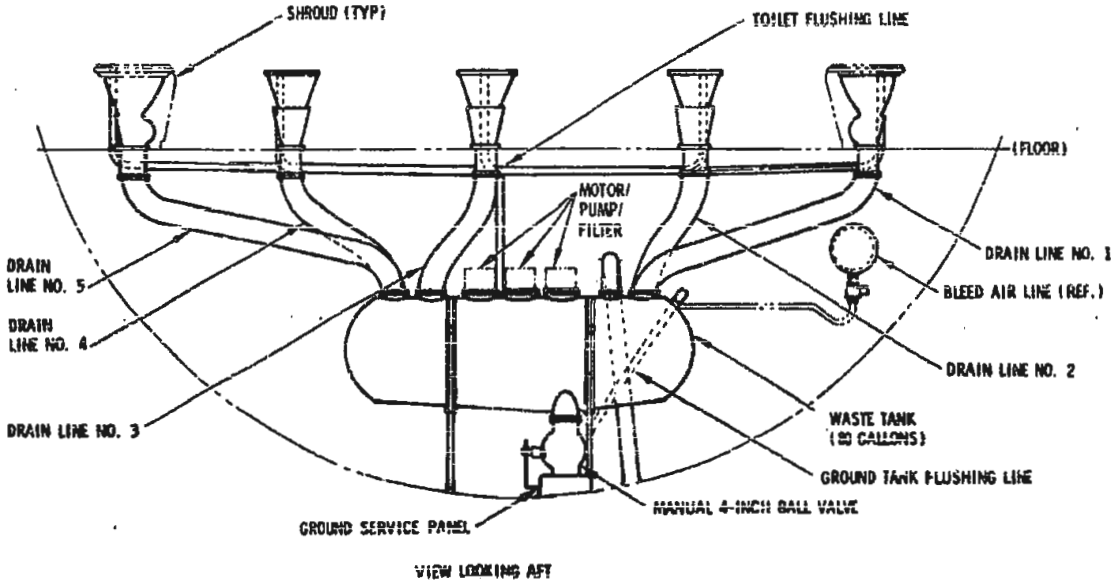
Forward Lavatory Waste System
Figure 1

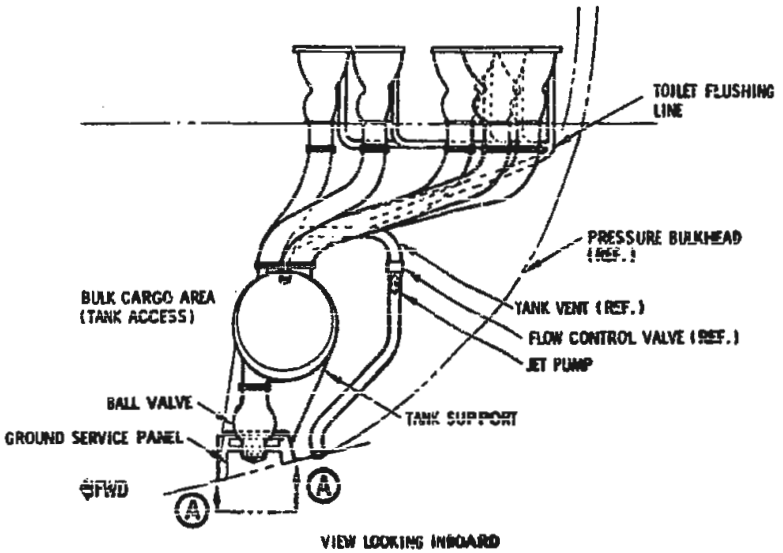
EFFECTIVITY: 001-031 WITH SB38-032 AND SB30-050 AND 032-999

001B





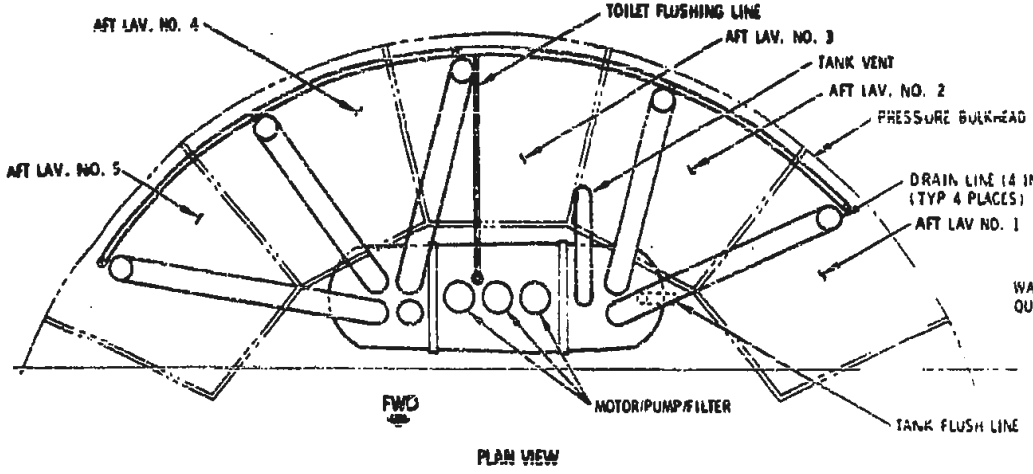




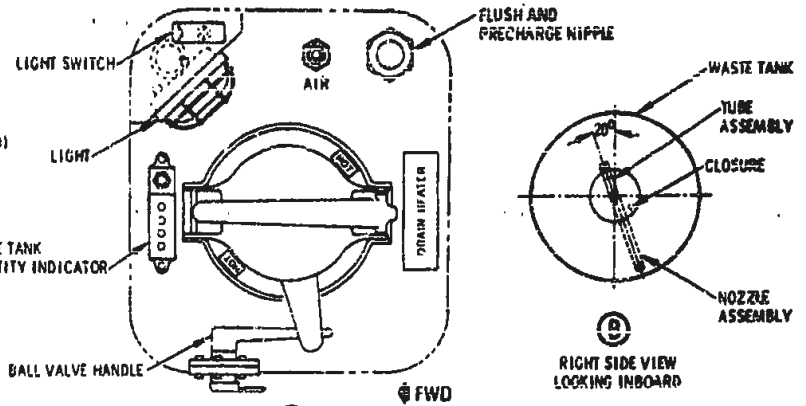
M1-0104-38-013

Aft Lavatory Waste System
Figure 2

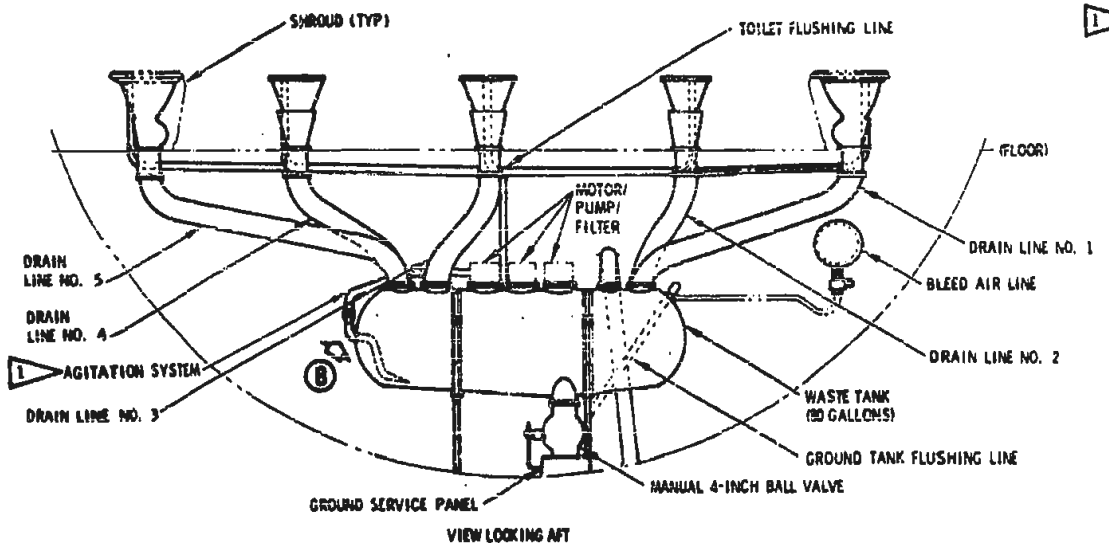
R EFFECTIVITY: 001-031 WITHOUT SB38-032 AND
R SB30-050
001B



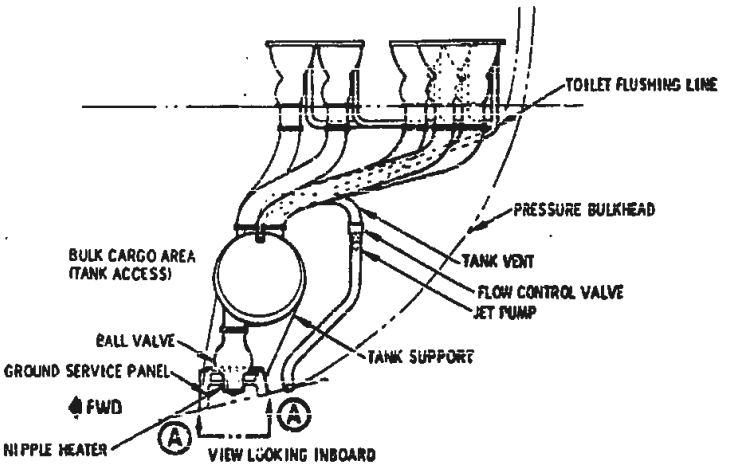
PLAN VIEW



NOTE
1 DELETED AFTER INCORPORATION OF SB 38-054 AND 38-055



VIEW LOOKING AFT



VIEW LOOKING INBOARD

M1-0000-38-000

R
R
R

Aft Lavatory Waste System
Figure 2

sequenced into operation and the Flight Engineer/Second Officers fault light comes on.

The waste system pressure switch is normally closed. The switch opens if there is sufficient pressure in the manifold. When the pressure switch is closed, the pump motor power circuit is deenergized. A 28V dc power circuit to the Flight Engineer/Second Officers console in the flight station is energized. This lights the FWD or AFT lamp on the WASTE WATER panel to indicate pump and/or line pressure failure (Ref. Fig. 3).

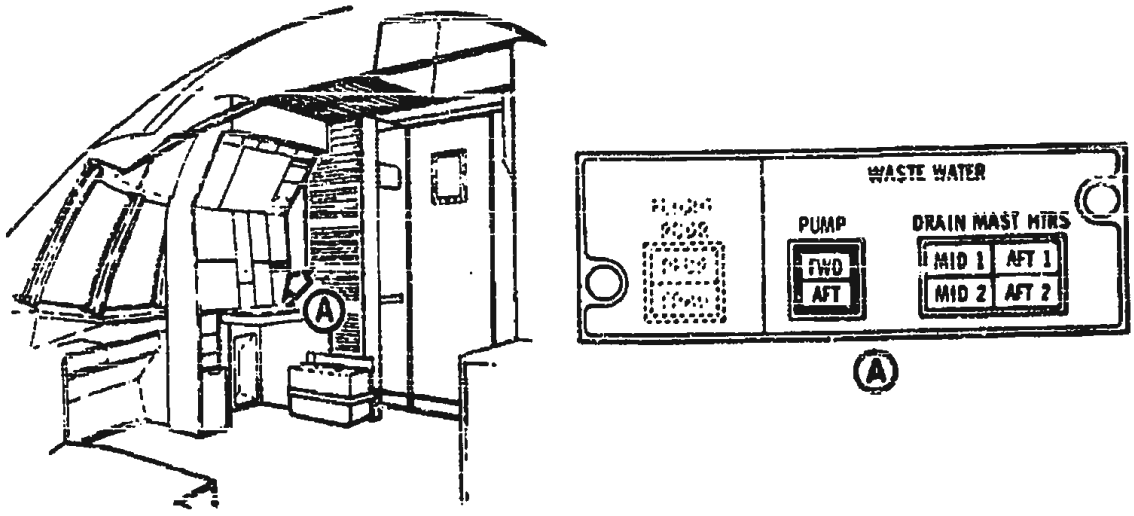
3. Toilet Assembly

A. Description

The toilet assembly in each lavatory includes a shroud, a hinged seat and cover, and a toilet bowl assembly.

The shroud fits over the toilet bowl assembly. The shroud is attached to the wall of the lavatory through flanges on the back.

R Five captive screws in the toilet assembly engage dome nuts bonded to the bottom flange of the shroud. The top surface



FLIGHT ENGINEER/SECOND OFFICERS STATION (ZONE 215)

M1-0102-38-014

Pump Failure Warning Lights
Figure 3

is flat and has a smaller opening than the toilet bowl. Attach holes for the toilet seat and cover hinge bolts are provided at the rear of the top surface.

The shroud, hinged toilet seat, and cover are made of durable plastic. Four rubber supports are attached to the bottom surface of the seat.

The toilet bowl assembly (Ref. Fig. 5) includes a base, a bowl assembly, and a V-band clamp. The bowl assembly is made of stainless steel.

R The upper portion of the base has a flanged opening with an O-ring groove around the flat top surface. The outer lower surface of the flange is chamfered to accommodate a V-band clamp. The inner contour of the base decreases to a 4-inch inside diameter tube which incorporates a tapered V-band mounting flange for the toilet drain line. The base is secured to the lavatory floor with bolts. The top of the bowl assembly is egg-shaped. The sides taper to an enclosed bottom, except for an exit (sight trap) in the forward side. This opening is covered with a weighted flapper valve. The outer lower periphery of the bowl assembly is a chamfered V-band mounting flange which mates with the flange on the base. The side of the bowl near the top is beaded. The inlet port of the flush line is tangent to this bead. A V-band clamp secures the bowl assembly to the base. This allows quick disconnect for cleaning of the main drain ducts and replacement of the solenoid valve.

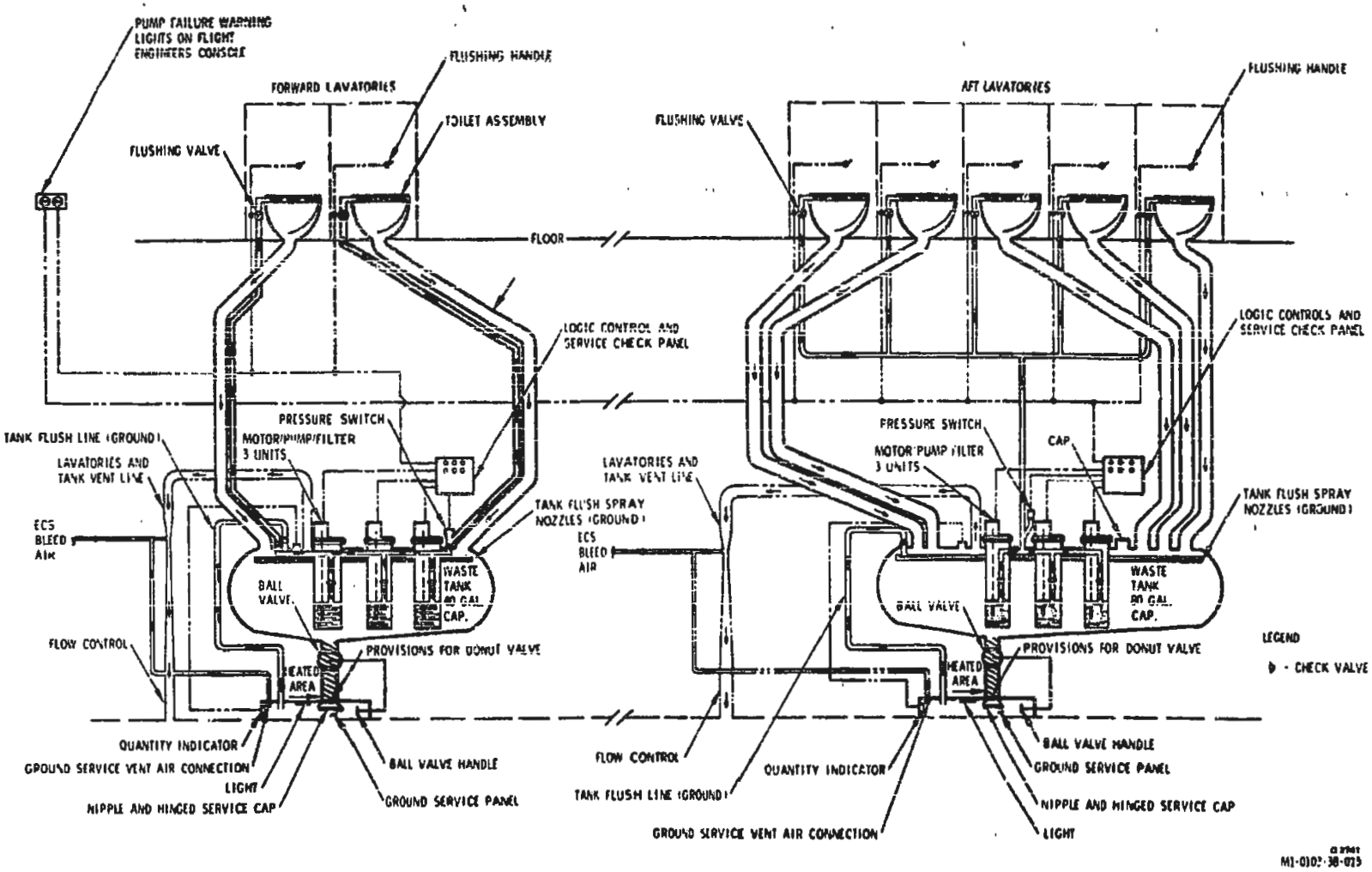
B. Operation

When the toilet is flushed, the nozzle in the bowl imparts a swirling motion to the flushing fluid. The fluid swirls around the bowl approximately four times before exiting through the sight trap. The flapper valve opens during flushing, or when the equivalent weight of one pint of fluid is in the bowl. When the flapper valve is closed fluid in the waste tank is prevented from sloshing upward during severe turbulence and odors are controlled.

4. Toilet Flushing Valve

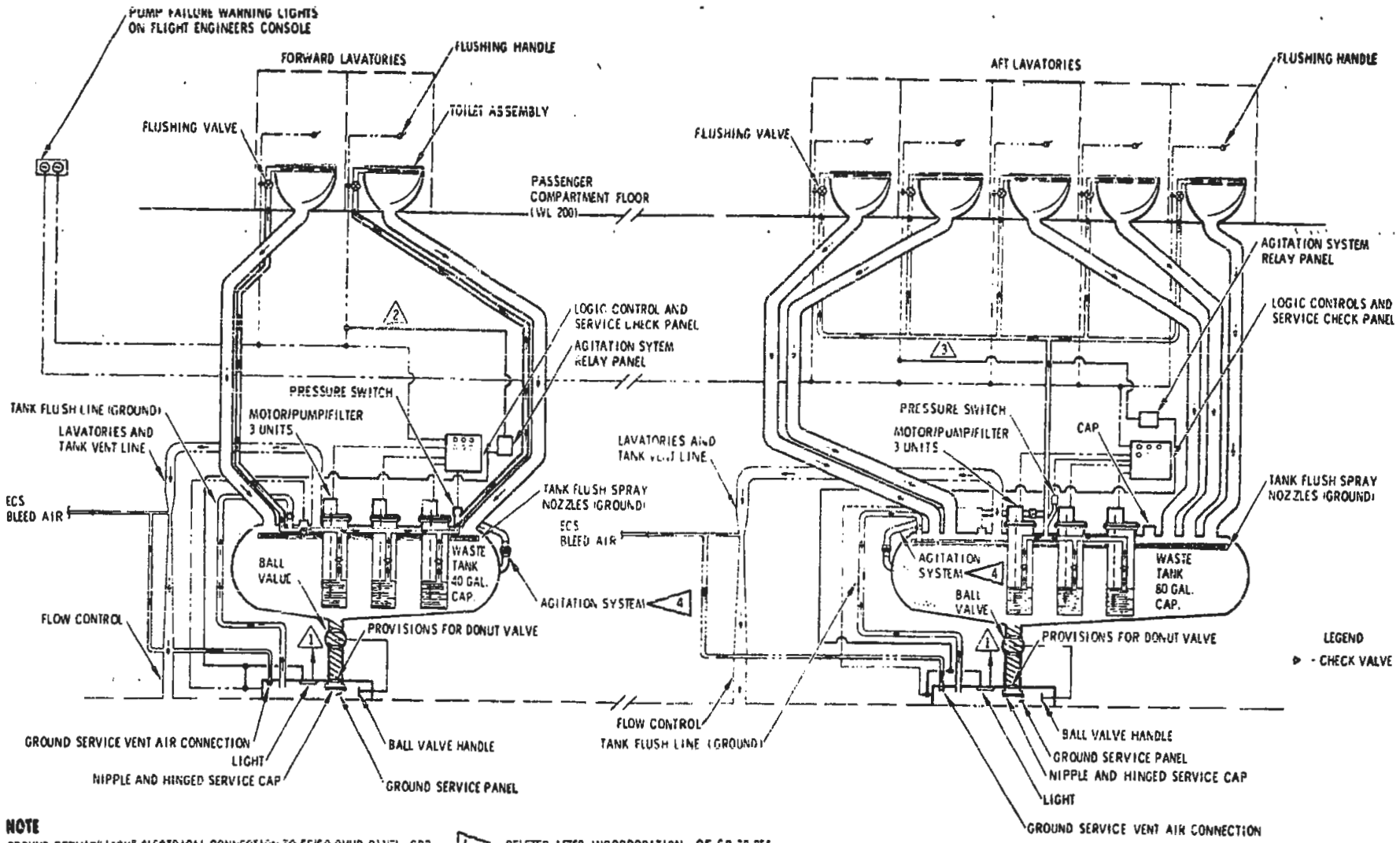
A. Description

A toilet flushing valve (Ref. Fig. 6) is installed in the flushing line to each toilet. The valve, located in back of each toilet bowl in the toilet assembly shroud, controls the flow of flushing fluid to the toilet.



Waste Disposal System Functional Schematic
Figure 4

R
R
001B EFFECTIVITY: 001-031 WITHOUT SB38-032



NOTE

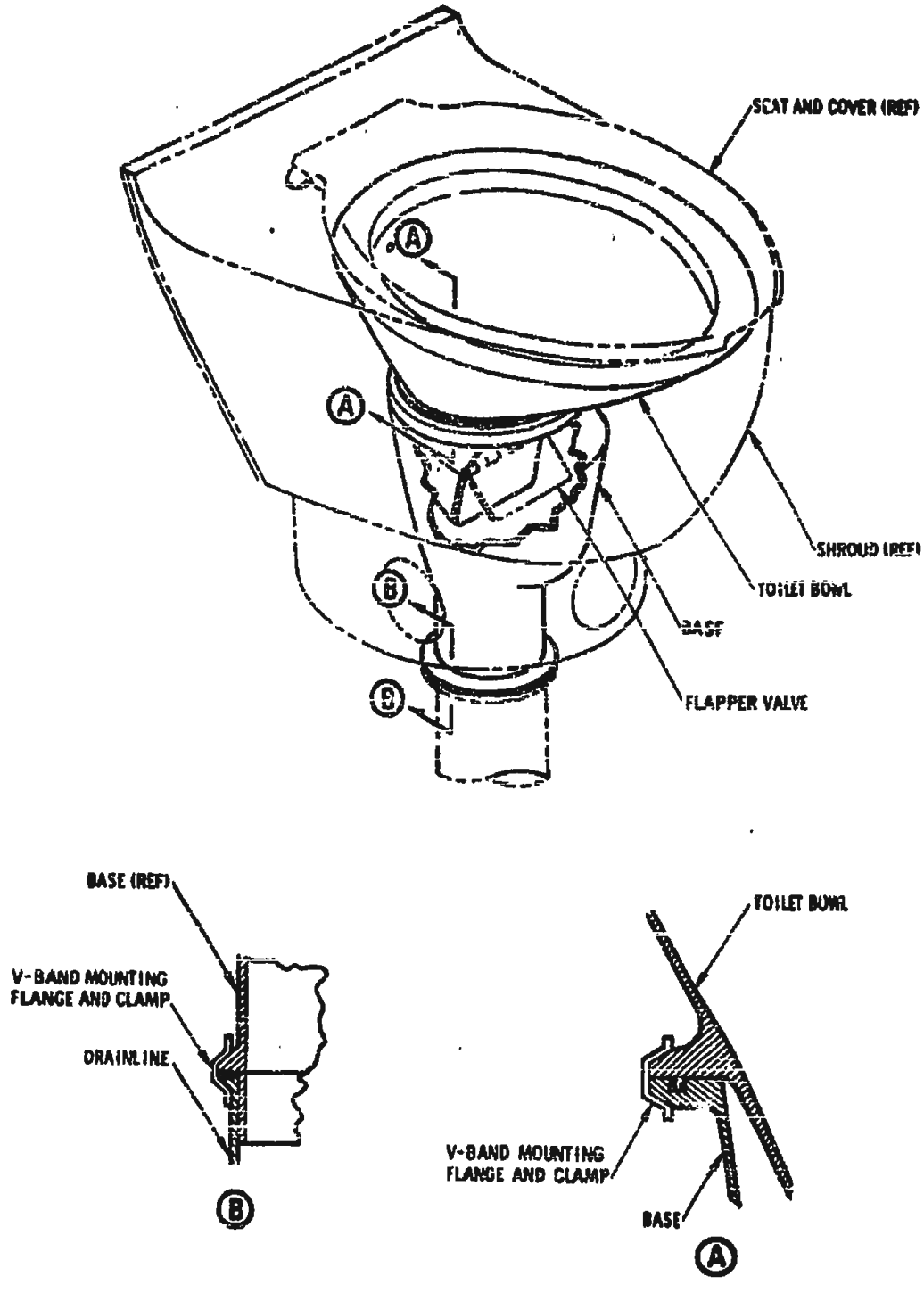
1. GROUND SERVICE LIGHT ELECTRICAL CONNECTION TO FE/SO OVHD PANEL, CB2
2. AGITATION SYSTEM ELECTRICAL CONNECTION TO FORWARD RIGHT LAVATORY
3. AGITATION SYSTEM ELECTRICAL CONNECTION TO AFT NUMBER 2 LAVATORY
4. DELETED AFTER INCORPORATION OF SB 38-054

M1-0001-38-637

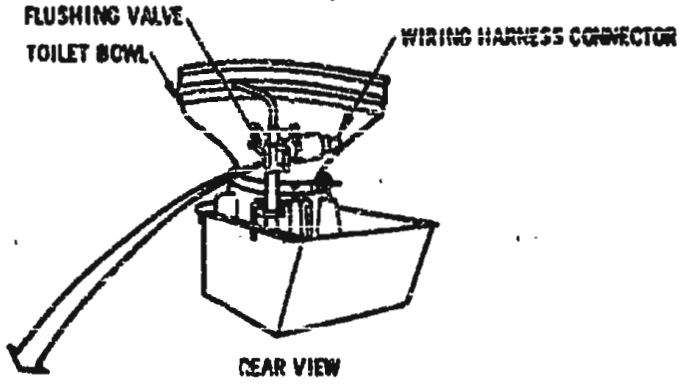
CR CR Waste Disposal System Functional Schematic
Figure 4

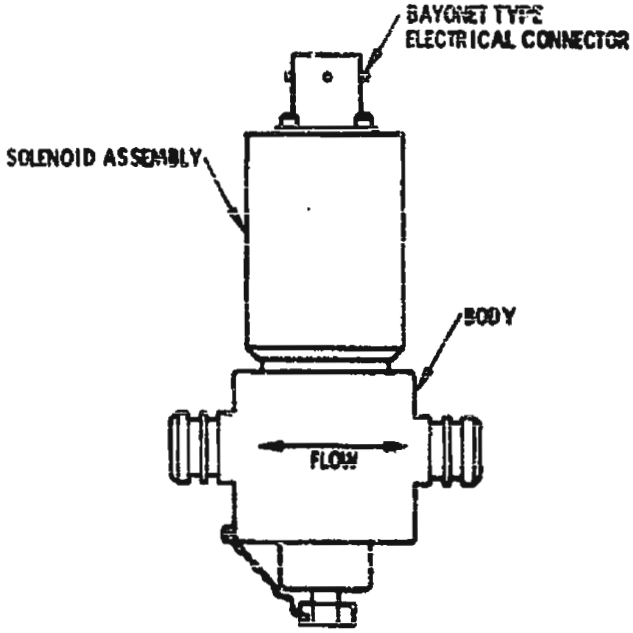
EFFECTIVITY: 001-031 WITH SB38-032 AND 032-999

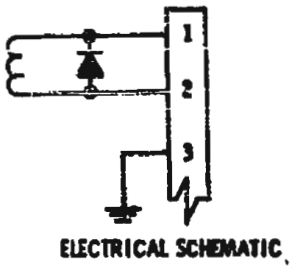
001B



Toilet Bowl Assembly
Figure 5

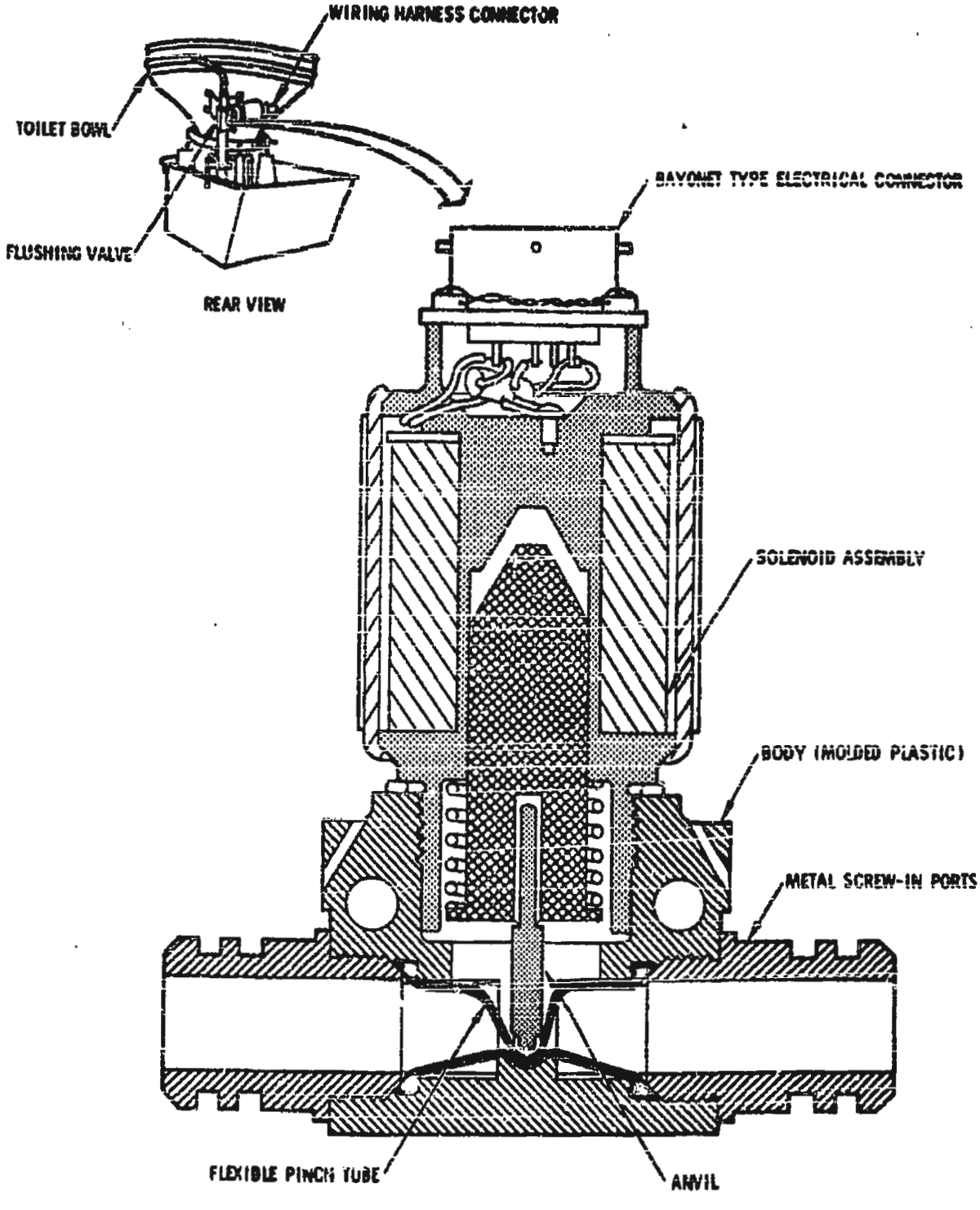






M1-0109-38-002

Toilet Flushing Valve
Figure 6



Toilet Flushing Valve
Figure 6

The unit is a 1/2-inch, normally closed, solenoid-actuated pinch valve with in-line ports. The valve, when opened, permits flow in either direction.

The valve body is made of plastic. The two seats, plunger, bobbin shell, and spring are made of corrosion resistant steel. The O-rings are made of Buna-N rubber. A dc solenoid assembly is mounted on top of the valve body. Electrical wiring, with a 5-pin connector completes the assembly.

B. Operation

Valve operation is initiated by the toilet flushing control switch. Electrical power (100V dc), supplied through the control logic unit, energizes the solenoid. The valve opens and allows flushing fluid to flow into the toilet bowl. The flushing time is controlled by the timer card in the control logic unit. When the programed time has elapsed, the valve solenoid is deenergized and valve closes to stop fluid flow. With no pressure in the system, liquid is permitted to flow back through the valve and into the tank thus preventing freezing under adverse conditions.

5. Toilet Flushing Control Switch

A. Description

A separate toilet flushing control switch (Ref. Fig. 7) initiates the flushing cycle for each toilet in the waste disposal system. The switch is mounted behind the toilet shroud in each lavatory.

The switch assembly includes the switch mechanism, mounting plate, connector, and connector mounting bracket. A cable harness and grounding strap (not part of this assembly) interconnects the switch, flushing valve solenoid, control logic unit and aircraft ground (Ref. Fig. 4).

B. Operation

The flushing cycle begins when the toilet flushing handle is actuated. One set of contacts in the switch activates the timer in the control logic assembly and activates the motor-pump-filter unit, if it is not already operating. The flushing sequence is automatic, and the handle should be released immediately after initiating the flushing cycle.

6. Aft Waste Tank Assembly

A. Description

The aft waste tank assembly (Ref. Fig. 8) stores and chemically processes waste accumulated during flight from the aft lavatories in the aircraft.

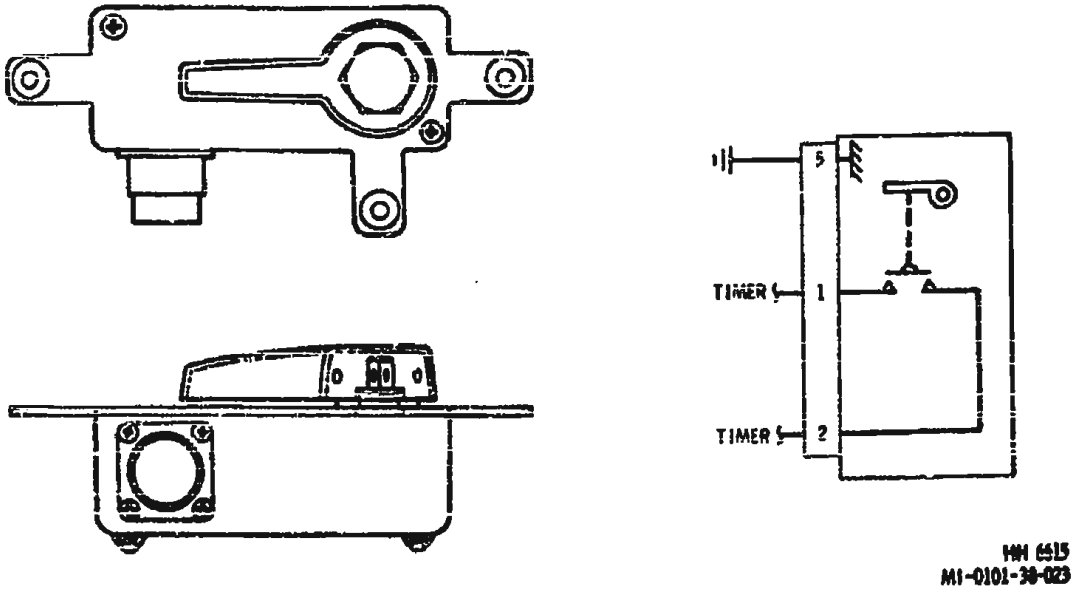
The tank assembly is installed laterally on two cradle supports (Ref. Fig. 2).

Each end of the tank is shaped to a convex spherical radius to form a pressure dome. The bottom half of the tank tapers from each end to a major diameter at the drain port. This shape permits complete draining of the contents of the tank.

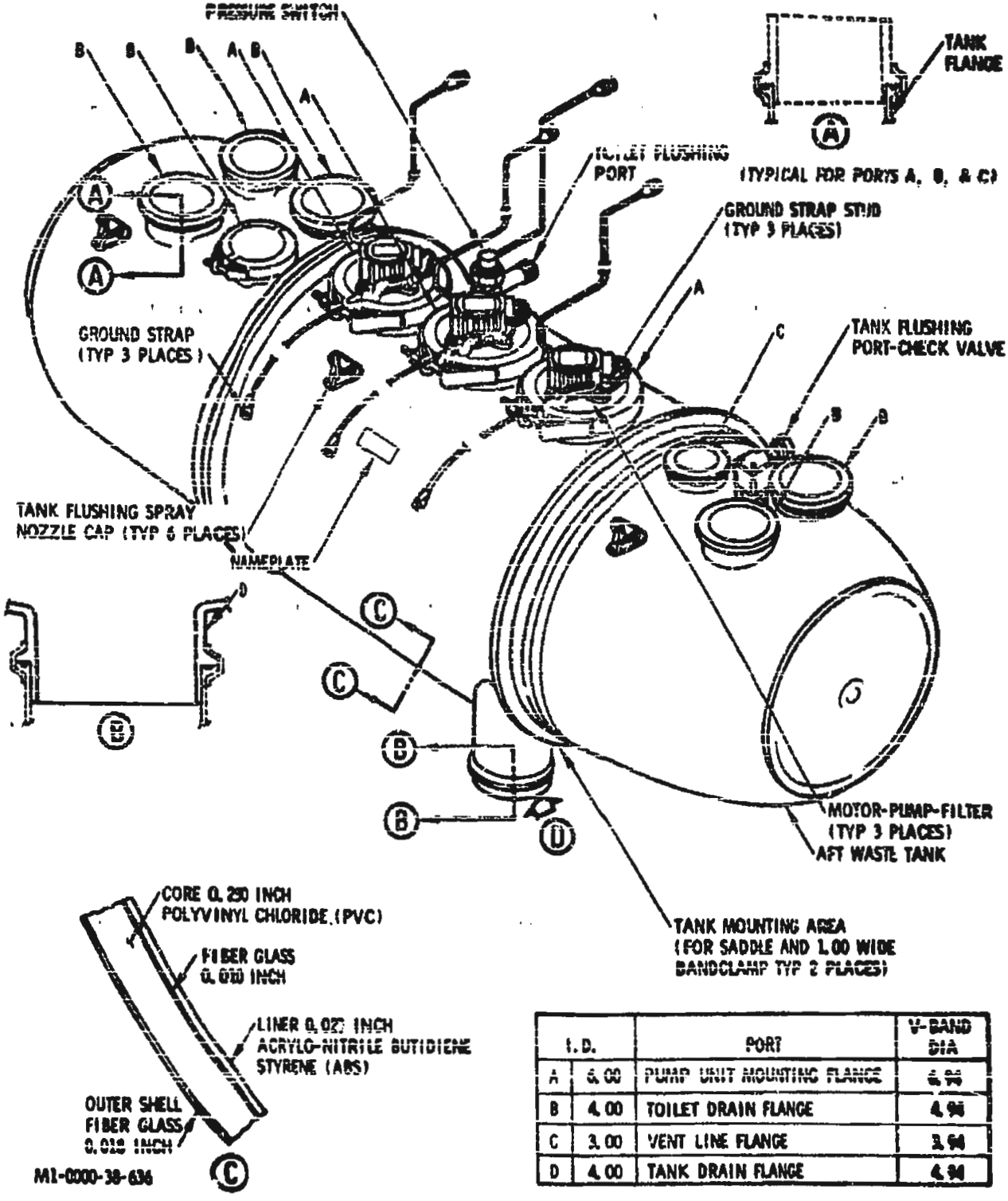
The top surface of the tank includes the following:

Four 4-inch diameter toilet drain line ports outboard of the tank right end mounting area.

Three 6-inch diameter MPFCA ports between the two mounting areas.



Toilet Flushing Control Switch
Figure 7


PRESSURE SWITCH
TANK FLANGE
(TYPICAL FOR PORTS A, B, & C)
TOILET FLUSHING PORT
GROUND STRAP STUD (TYP 3 PLACES)
GROUND STRAP (TYP 3 PLACES)
TANK FLUSHING PORT-CHECK VALVE
TANK FLUSHING SPRAY NOZZLE CAP (TYP 6 PLACES)
NAMEPLATE
MOTOR-PUMP-FILTER (TYP 3 PLACES)
AFT WASTE TANK
TANK MOUNTING AREA (FOR SADDLE AND 1.00 WIDE BANDCLAMP TYP 2 PLACES)
CORE 0.250 INCH POLYVINYL CHLORIDE (PVC)
FIBER GLASS 0.030 INCH
LINER 0.027 INCH ACRYLO-NITRILE BUTIDIENE STYRENE (ABS)
OUTER SHELL FIBER GLASS 0.010 INCH
M1-0000-38-636

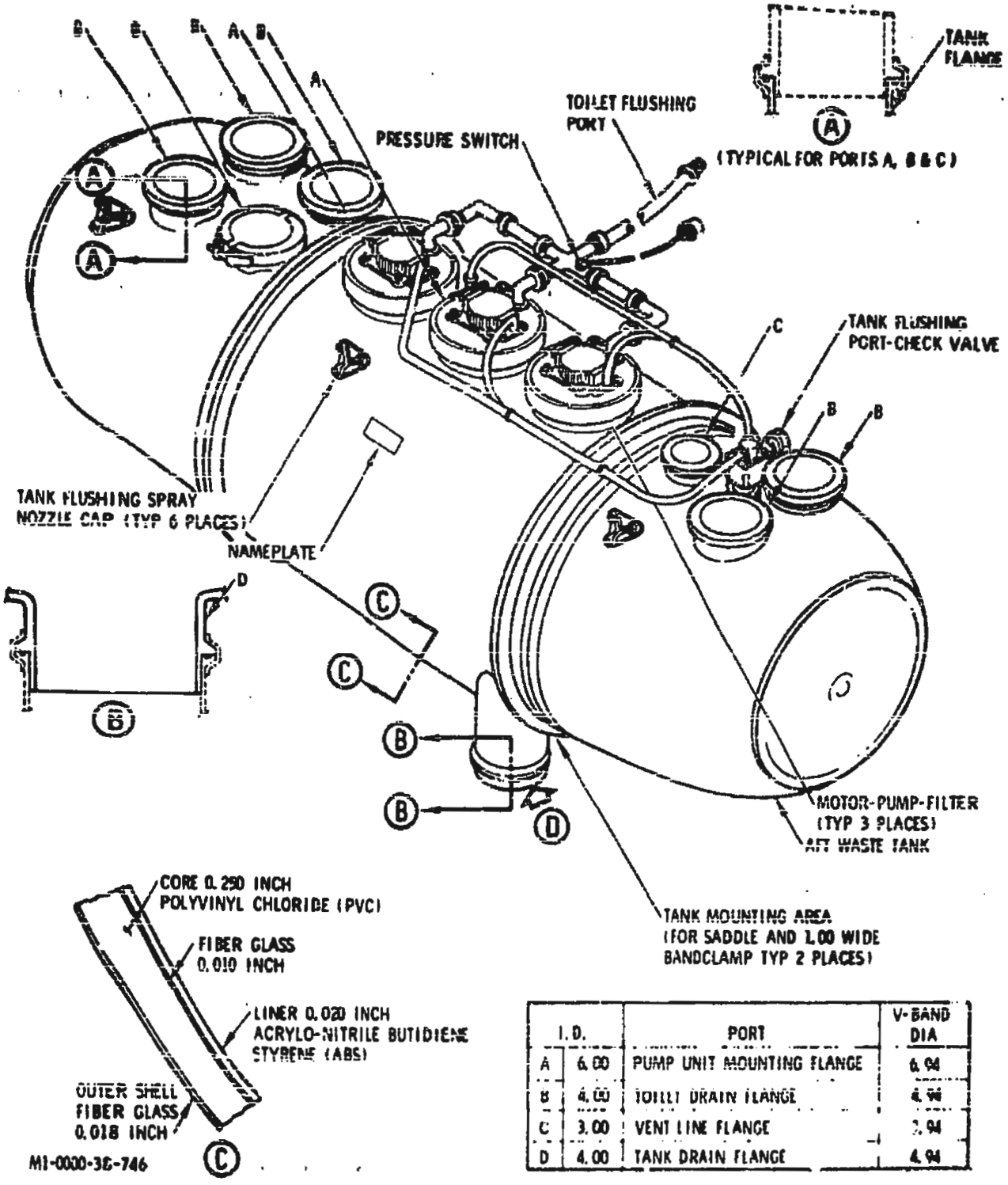
	I.D.	PORT	V-BAND DIA
A	6.00	PUMP UNIT MOUNTING FLANGE	6.94
B	4.00	TOILET DRAIN FLANGE	4.96
C	3.00	VENT LINE FLANGE	3.94
D	4.00	TANK DRAIN FLANGE	4.94

C
C

Aft Waste Tank Assembly
Figure 8

R
R
001B

EFFECTIVITY: AIRCRAFT WITHOUT SB38-054


TANK FLANGE
TOILET FLUSHING PORT
PRESSURE SWITCH
(TYPICAL FOR PORTS A, B & C)
TANK FLUSHING PORT-CHECK VALVE
TANK FLUSHING SPRAY NOZZLE CAP (TYP 6 PLACES)
NAMEPLATE
MOTOR-PUMP-FILTER (TYP 3 PLACES)
AFT WASTE TANK
TANK MOUNTING AREA (FOR SADDLE AND 1.00 WIDE BANDCLAMP TYP 2 PLACES)
CORE 0.250 INCH POLYVINYL CHLORIDE (PVC)
FIBER GLASS 0.010 INCH
LINER 0.020 INCH ACRYLO-NITRILE BUTIDIENE STYRENE (ABS)
OUTER SHELL FIBER GLASS 0.018 INCH
M1-0000-38-746

I.D.		PORT	V-BAND DIA
A	6.00	PUMP UNIT MOUNTING FLANGE	6.94
B	4.00	TOILET DRAIN FLANGE	4.94
C	3.00	VENT LINE FLANGE	3.94
D	4.00	TANK DRAIN FLANGE	4.94

R
R

Aft Waste Tank Assembly
Figure 8

EFFECTIVITY: AIRCRAFT WITH SB38-054

0015

On aircraft without SB38-054, a 1-inch diameter toilet flushing line and pressure switch port located adjacent to the MPFCA ports.

On aircraft with SB38-054, external to the tank is a precharge manifold connecting directly to each of the three pump flushing ports. This manifold is made up of cut hoses and clamps. Mounted on the manifold is an adapter which accepts the toilet flushing port (which distributes fluid to each toilet) and also the pressure switch.

A 3-inch diameter tank vent port and two 4-inch diameter toilet drain ports outboard of the tank left mounting area.

A 1-inch diameter tank flushing port and check valve at left end of the tank.

Inside and integral with the tank is a network of tubing with six spray nozzles. Inspection covers are provided at each spray nozzle location on the exterior surface of the tank. The covers provide access for cleaning or replacement of the nozzles. A check valve installed in the tank flushing port prevents reverse flow of fluid during flight.

The aft waste tank has a capacity of 80 U.S. (66.64 imperial) gallons. The tank is constructed as follows:

The outer shell is made of 0.018-inch-thick fiber glass filament wound.

The core is 0.250-inch-thick Polyvinyl Chloride (PVC) foam.

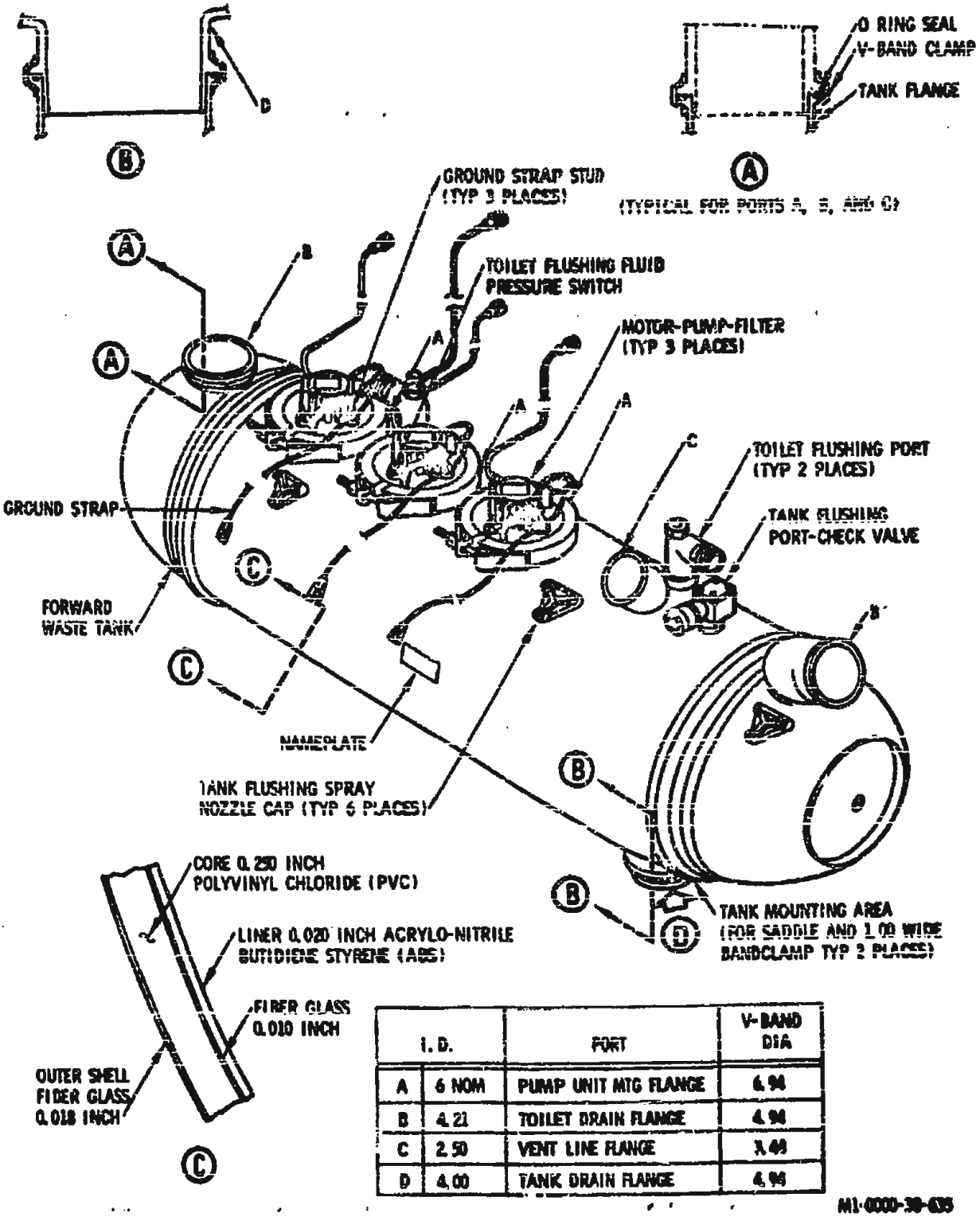
The inner surface of the core is covered with 0.010-inch-thick fiber glass.

The tank has a 0.020-inch thick liner of Acrylo-Nitrile Butidiene styrene.

7. Forward Waste Tank Assembly

A. Description

The forward waste tank assembly (Ref. Fig. 9) stores and chemically processes waste accumulated during flight from the forward lavatories.



	I.D.	PORT	V-BAND DIA
A	6 NOM	PUMP UNIT MTG FLANGE	6.94
B	4.21	TOILET DRAIN FLANGE	4.94
C	2.50	VENT LINE FLANGE	3.44
D	4.00	TANK DRAIN FLANGE	4.94

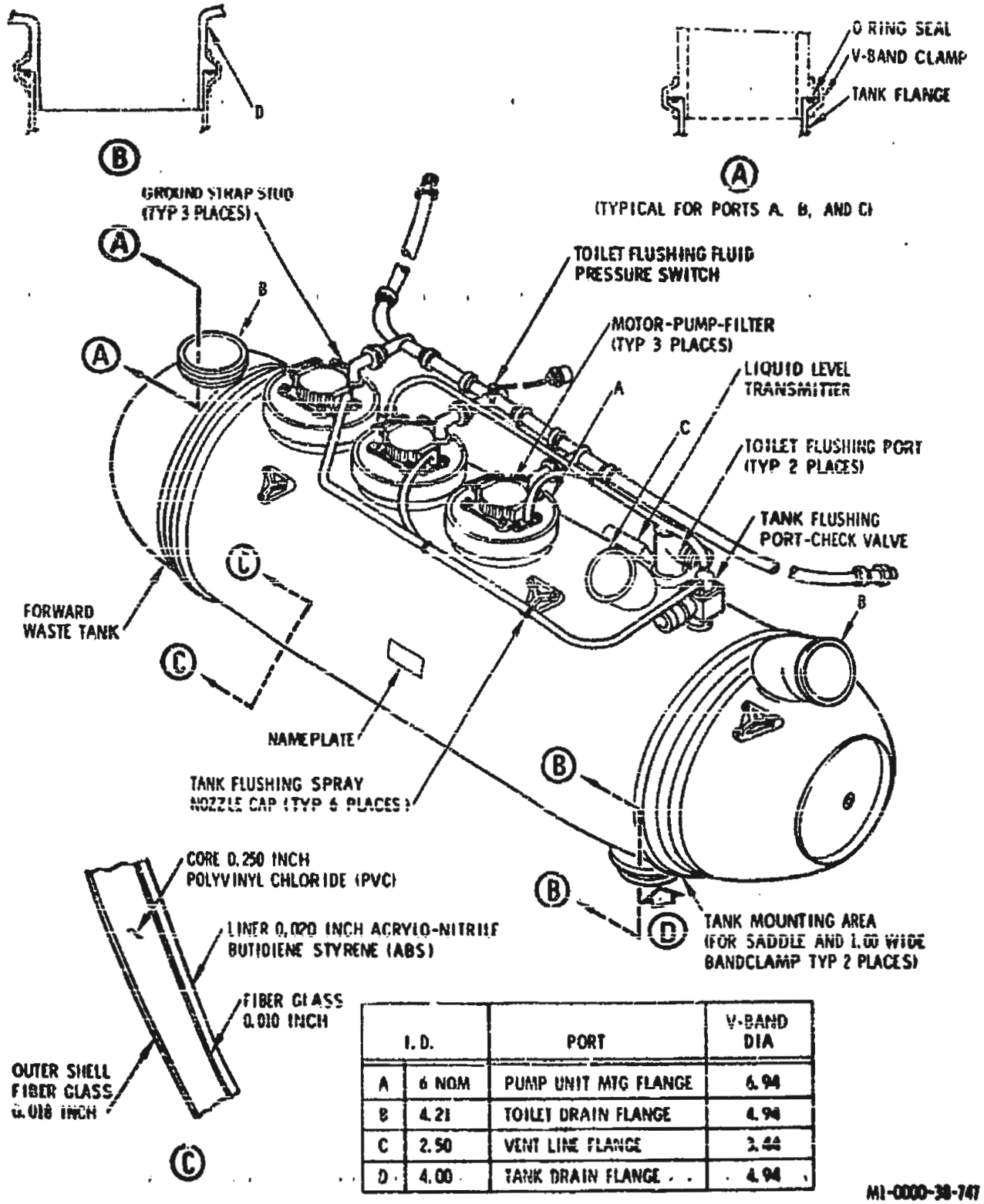
M1-0000-38-035

C
C

Forward Waste Tank Assembly
Figure 9

R
R
0016

EFFECTIVITY: AIRCRAFT WITHOUT SB38-054


O RING SEAL
V-BAND CLAMP
TANK FLANGE
(TYPICAL FOR PORTS A, B, AND C)
GROUND STRAP STUD (TYP 3 PLACES)
TOILET FLUSHING FLUID PRESSURE SWITCH
MOTOR-PUMP-FILTER (TYP 3 PLACES)
LIQUID LEVEL TRANSMITTER
TOILET FLUSHING PORT (TYP 2 PLACES)
TANK FLUSHING PORT-CHECK VALVE
FORWARD WASTE TANK
NAMEPLATE
TANK FLUSHING SPRAY NOZZLE CAP (TYP 6 PLACES)
TANK MOUNTING AREA (FOR SADDLE AND 1.00 WIDE BANDCLAMP TYP 2 PLACES)
CORE 0.250 INCH POLYVINYL CHLORIDE (PVC)
LINER 0.020 INCH ACRYLO-NITRILE BUTIDIENE STYRENE (ABS)
FIBER GLASS 0.010 INCH
OUTER SHELL FIBER GLASS 0.018 INCH

I.D.		PORT	V-BAND DIA
A	6 NOM	PUMP UNIT MTG FLANGE	6.94
B	4.21	TOILET DRAIN FLANGE	4.94
C	2.50	VENT LINE FLANGE	3.44
D	4.00	TANK DRAIN FLANGE	4.94

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R
R

Forward Waste Tank Assembly
Figure 9

EFFECTIVITY: AIRCRAFT WITH SB38-054

0018

The waste tank is installed laterally, and is mounted on two cradle supports behind a two-piece shroud and a two-piece cover (Ref. Fig. 1).

Each end of the tank is shaped to a convex spherical radius to form a pressure dome.

The bottom half of the tank tapers from each end to a major diameter at the drain port. This shape permits complete draining of the contents of the tank.

The top surface of the tank includes the following:

Two 4-inch diameter toilet drain ports, one on each end, outboard of the tank mounting areas.

Three 6-inch diameter MPFCA ports located left of the longitudinal centerline and between the two tank mounting areas.

R On aircraft without SB38-054,
R a 1-inch diameter toilet flushing line and pressure switch port, for the right toilet, located adjacent to the MPFCA ports, and a 1-inch diameter toilet flushing line port, for the left toilet, located aft of the vent port.

R On aircraft with SB38-054,
R external to the tank is a precharge manifold connecting
R directly to each of the three pump flushing ports.
R This manifold is made up of cut hoses and clamps.
R Mounted on the manifold are two adapters which accept
R the toilet flushing port/pressure switch assemblies.

A 3-inch diameter tank vent port located between the MPFCA ports and the tank left mounting areas.

A 1-inch diameter tank flushing port and check valve located between the vent port and the tank left mounting area.

Inside and integral with the tank is a network of tubing with six spray nozzles. Inspection covers are provided at each spray nozzle location on the exterior surface of the tank. The covers provide access for cleaning or replacement of the nozzles. A check valve in the flushing port prevents back flow of fluid during flight.

The forward waste tank has a capacity of 40 U.S. (33.32 Imperial) gallons. The tank is constructed as follows:

The outer shell is made of 0.018-inch-thick fiber glass filament wound.

The core is 0.250-inch-thick Polyvinyl Chloride (PVC) foam.

The inner surface of the core is covered with 0.010-inch-thick fiber glass.

The tank has a 0.020-inch-thick liner of Acrylo-Nitrile Butidiene Styrene.

8. Waste Tank Pump Motor

A. Description

CR CR CR The forward and aft waste disposal system includes five pump motors. Three motors are used in the aft system and two motors in the forward system. Each individual motor drives a separate pump-filter unit. The units supply flushing fluid to the toilets serviced by the respective waste tank assembly. Motor shaft speed of 7600 rpm is reduced through a gearbox to drive the pump-filter unit.

Each motor (Ref. Fig. 10) weighs approximately 4.5 pounds. The motor is capable of continuous duty at rated load.

The motor is mounted on the pump-filter housing assembly. The motor shaft slides into the coupling in the pump shaft. The electrical plug connects to a receptacle on the control logic assembly.

C 9. Waste Tank Level Indicators (DELETED)

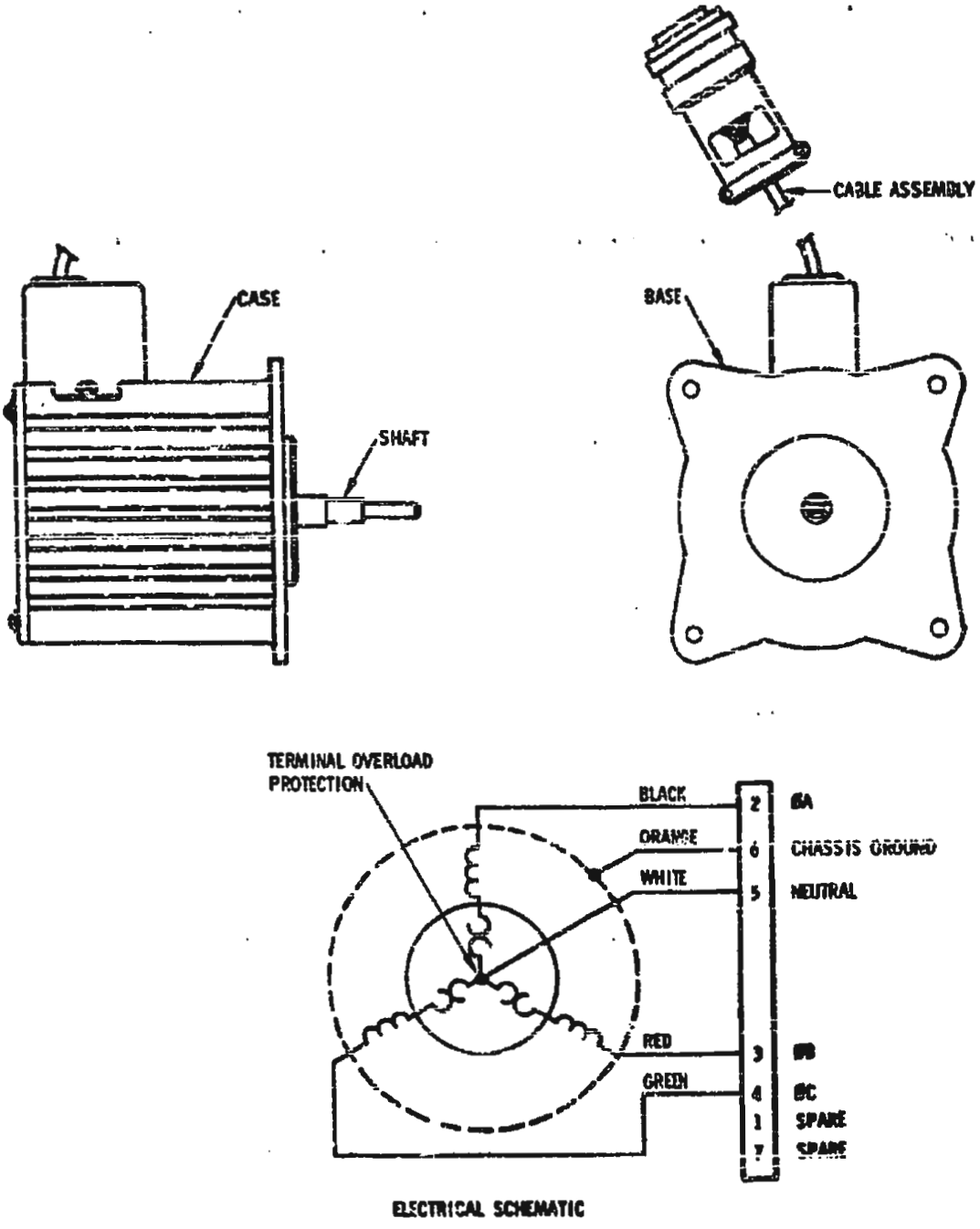
10. Motor-Pump-Filter-Cartridge Assembly (MPFCA), Forward Waste Tank

A. On aircraft without SB38-054, Description

There are three MPFCA in the forward lavatory waste disposal system (Ref. Fig. 1).

Each unit consists of a motor, flanged body, body extender, sleeve assemblies, pump impeller housing, centrifugal impeller, and a filter (Ref. Fig. 11). The units are installed on TOP OF THE FORWARD WASTE TANK, ZONE 113.

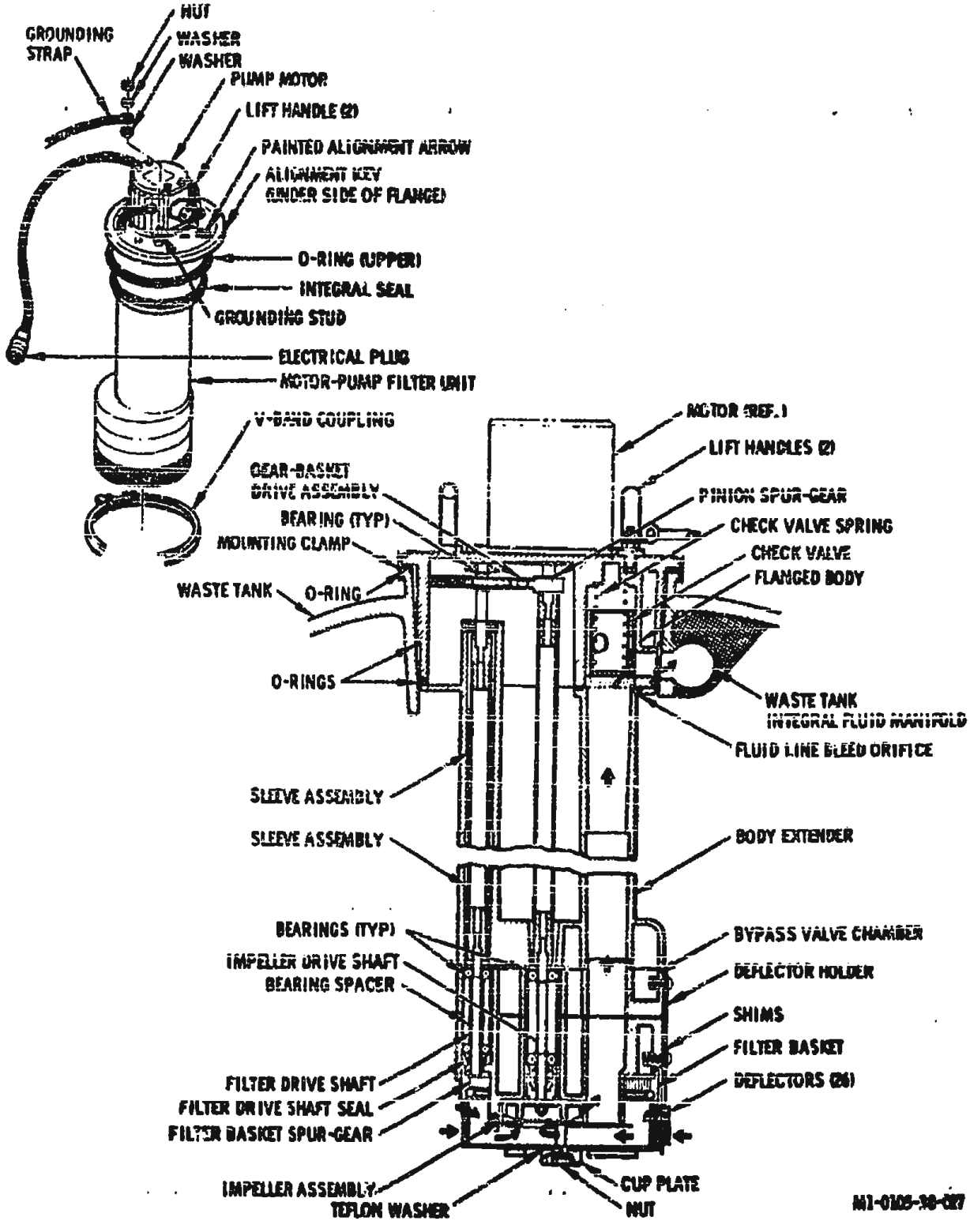
The flanged body consists of a pinion spur gear, basket drive assembly, sleeve assemblies and ball bearing assembly.



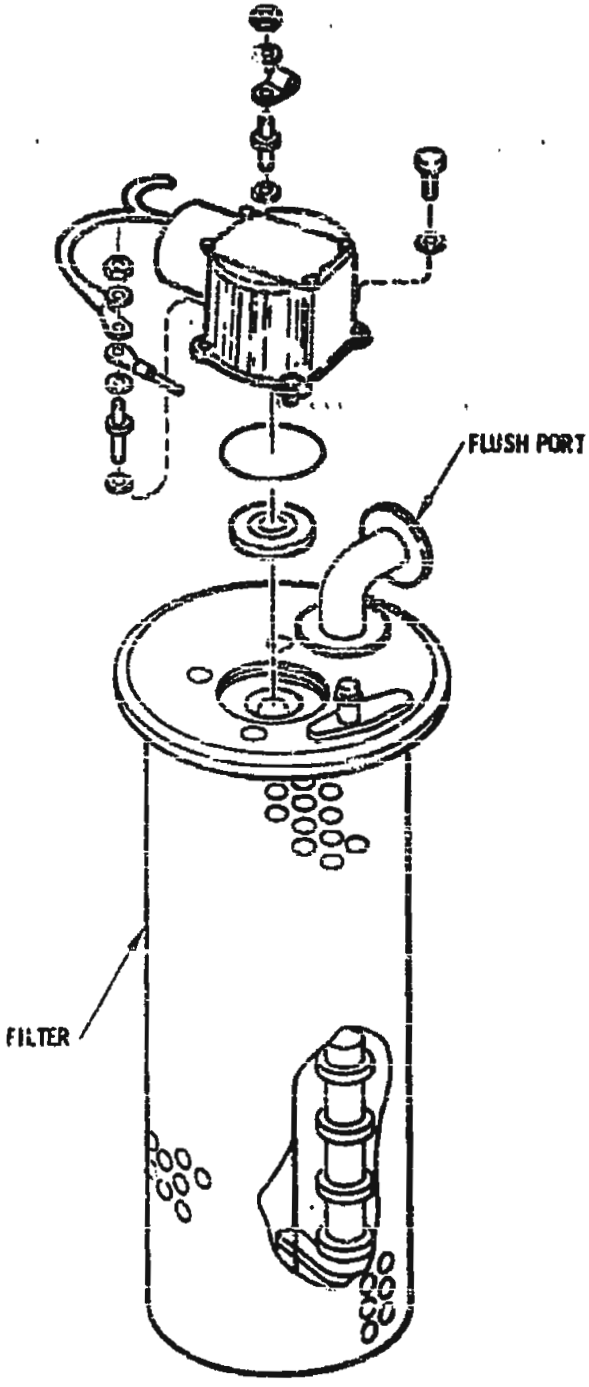
ELECTRICAL SCHEMATIC

M1-0108-38-005

Waste Tank Pump Motor
Figure 10



Motor-Pump-Filter-Cartridge Assembly
Figure 11



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R
R Motor-Pump-Filter-Cartridge Assembly
Figure 11

EFFECTIVITY: AIRCRAFT WITH SB38-054

001B

The flanged body is cylindrical with a flat, closed top. The bottom is open and installs around the upper end of the body extender. The flanged body is secured to the upper flange of the body extender. An O-ring is provided between the mating surfaces of the body extender and the impeller housing. The top surface has an O-ring groove and mounting holes for an electric drive motor. The overhanging edge is machined to accommodate a V-band clamp, which secures the unit in the waste tank. A key projection on the underside of the flange mates with a keyway notch in the tank flange to provide the required indexing of motor-pump-filter unit and tank integral fluid manifold porting. Arrows painted on pump and tank (aft side of port) also aid in alignment during pump installation.

The body extender is cylindrical except for an external flange. The upper surface of the flange and the lower end of the housing is machined to mate with the flanged body and the bypass housing.

The filter assembly includes a fixed blade cleaner, an outer rotating filter basket, a filter drive shaft with a spur gear, and two ball bearing assemblies. A shaft seal, seals the filter drive shaft.

NOTE: With incorporation of SB38-054, a new motor-pump assembly is installed which has a stationary perforated filter basket.

The inner basket is a molding with a machined center column for the pump assembly. A rotating basket on the impeller drive shaft rotates around fixed knives.

The impeller housing consists of an impeller, impeller drive shaft, ball bearing, impeller housing gasket seal, and an impeller drive shaft seal.

The upper end of the impeller shaft is inserted through the lower bearing in the center column of the impeller housing. The opposite end is partially threaded to receive a hex machine nut.

A sleeve assembly provides a drive from the basket and clutch drive assembly in the flanged body to the filter drive shaft for the filter basket.

R A. On aircraft with SB38-054,
R Description and Operation

R There are three MPFCA in the forward lavatory waste disposal
R system (Ref. Fig. 1). Each unit consists of a motor,
R mounting plates, stationary perforated filter basket,

rotating spray nozzles, and an impeller housing assembly and drive train.

The stationary perforated filter basket is installed over the rotating spray nozzles, impeller housing and drive train to mate with the underside of the mounting plate. The top surface of the mounting plate has an O-ring groove and mounting holes for an electric drive motor. The edge of the mounting plate is machined to accommodate a V-band clamp, which secures the unit in the waste tank.

The pump motor is installed on the top surface of the mounting plate. The pinion spur gear on the motor shaft meshes with the drive shaft assembly. The pinion gear on the motor shaft drives the impeller inside the impeller housing through the drive shaft and impeller drive shaft assemblies. The filter basket is automatically cleaned by built-in rotating cleaning devices each time the tank is serviced. The device has six 0.096 inch diameter spray nozzles which rotate at 2360 RPM delivering 8 GPM flow at 20 PSI for proper cleaning.

B. On aircraft without SB38-054,
Operation

The pump motor is installed on the top surface of the pump-filter unit. The pinion spur gear on the motor shaft meshes with the basket and drive assembly in the flanged body. The motor shaft indexes with the sleeve assembly. The pinion gear on the motor shaft drives the filter basket through the basket gear assembly. The basket and gear assembly on the sleeve assembly meshes with the filter drive shaft. The pump is directly driven by the 7600 (±200) revolutions per minute (rpm) motor.

11. Motor-Pump-Filter-Cartridge Assembly (MPFCA), Aft Waste Tank

A. Description

There are three MPFCA in the aft lavatory waste disposal system (Ref. Fig. 2). The units are installed in the aft waste tank, zone 167.

These units are identical to those in the forward lavatory waste disposal system except for longer sleeve assemblies and a longer body extender (on aircraft without SB38-054) or longer stationary perforated filter basket (on aircraft with SB38-054) (Ref. Fig. 11).

12. Waste System Pressure Switch

A. Description and Operation

The waste disposal system uses a normally closed, SPDT, pressure switch to sense the toilet bowl flush line pressure. A switch is mounted on top of the respective waste tank flush line fitting. The switch mechanism uses a negative rate spring to provide an instantaneous delivery of force.

The pressure switch closes when the pressure in the toilet bowl flush line drops to 4 psig or less. This action completes a circuit to the control logic system which switches another MPFCA to increase flush-line pressure. When the pressure in the system increases to 7 psig, the switch actuates to the open position.

R 13. On aircraft 001-031 without SB38-032, or aircraft with SB38-054
R and SB38-055,
C Service Panel Light Switch

C A. Description and Operation

C The waste disposal system uses two service panel light
C switches. One switch is installed on the forward waste
C system ground service panel and the other is on the aft
C waste system ground service panel, zone 167. The switch is
C manually operated and supplies 28V dc to the lamp that
C illuminates the ground service panel.

13. On aircraft 001-031 with SB38-032 and 032-999,
C Service Panel Light Switch

C A. Description and Operation

CR NOTE: With the incorporation of SB38-054 and SB38-055, the
CR auto agitation is removed from the aircraft.

C The waste disposal system uses two service panel light
C switches. One switch is installed on the forward waste
C system ground service panel and the other is on the aft
C waste system ground service panel, zone 167. The switch is
C manually operated and supplies 28V dc to the lamp that
C illuminates the ground service panel. The switch also
C operates the right side lavatory and the agitation system
C for the forward system, or the number 2 lavatory and the
C agitation system for the aft system. A tab on the access
C door will turn the service light switch OFF when the door is
CR closed.

14. Manual 4-inch Ball Valve

A. Description

The waste disposal system includes two 4-inch ball valve.. One valve is installed in the drain line of each waste tank.

The valve assembly consists of a body, visor-type flow control valve, lever, actuating rod, and extension handle (Ref. Fig. 12). The inlet port has an external flange for a V-type clamp. The flow control valve has a short bearing shaft and trunnion on one side and a shaft which protrudes out through the other side of the body. The end of the protruding shaft is square. The lever has a square hole at one end to permit installation onto the shaft. An actuating rod is attached to the other end of the lever. NYLON bushings between the lever and the actuating rod eliminate a secondary electrical ground. The rod extends down to a bellcrank which extends through the structure (pressure seal) and into the waste system ground service panel to the waste valve operating handle. Stops at open or closed positions prevent overtravel.

B. Operation

The valve is closed during flight. It is manually opened by the ground service crew when draining the waste tank.

The valve is closed when the handle is up. Pulling the handle down, to position lever against stop, opens the valve. The maximum operating torque is 60 pound-inches.

C 15. Liquid Level Transmitters (DELETED)

16. Control Logic Box

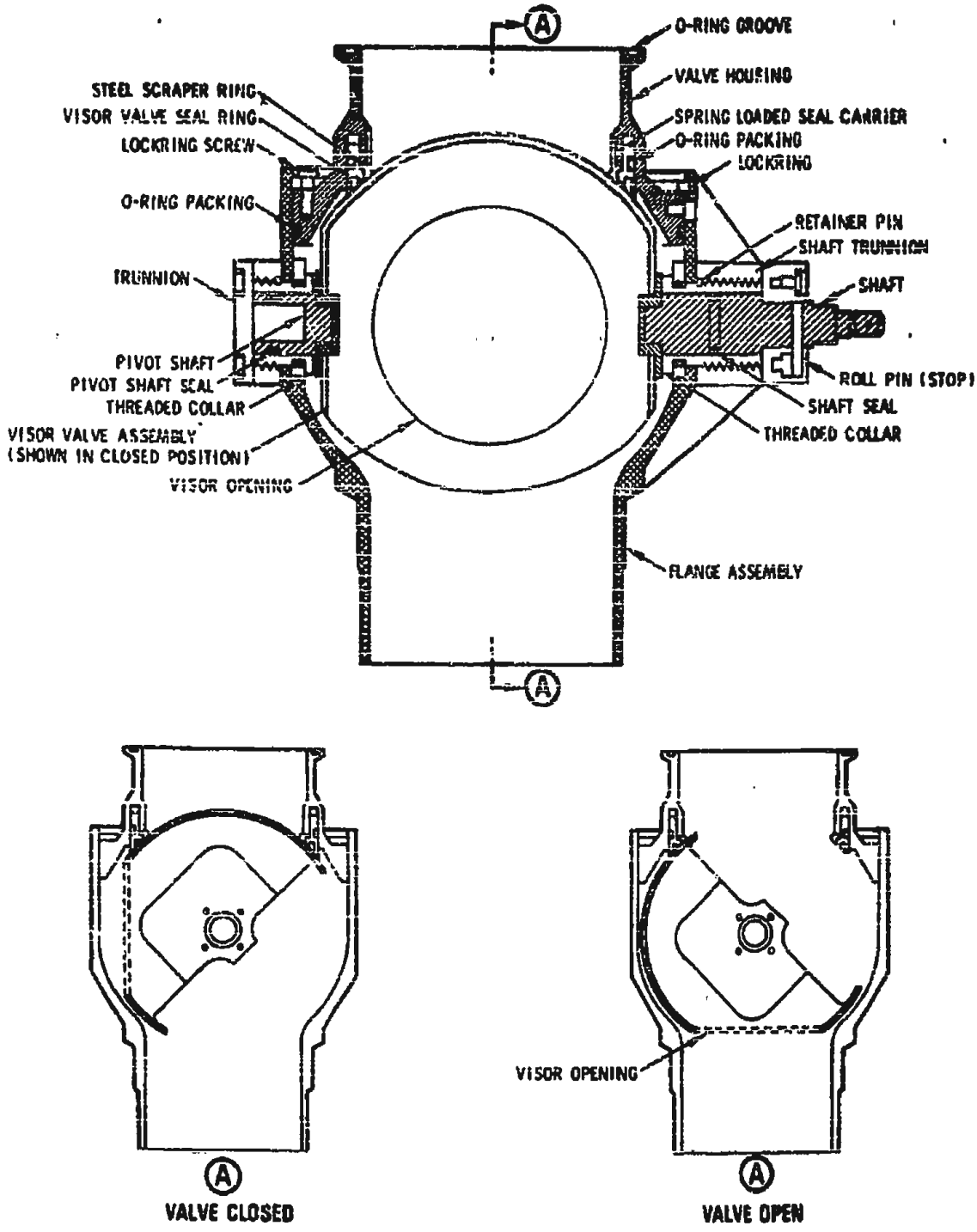
A. Description

(1) Forward and Aft Waste Systems

Both forward and aft waste disposal systems use control logic box to regulate sequence and fault indication for the MPFCA.

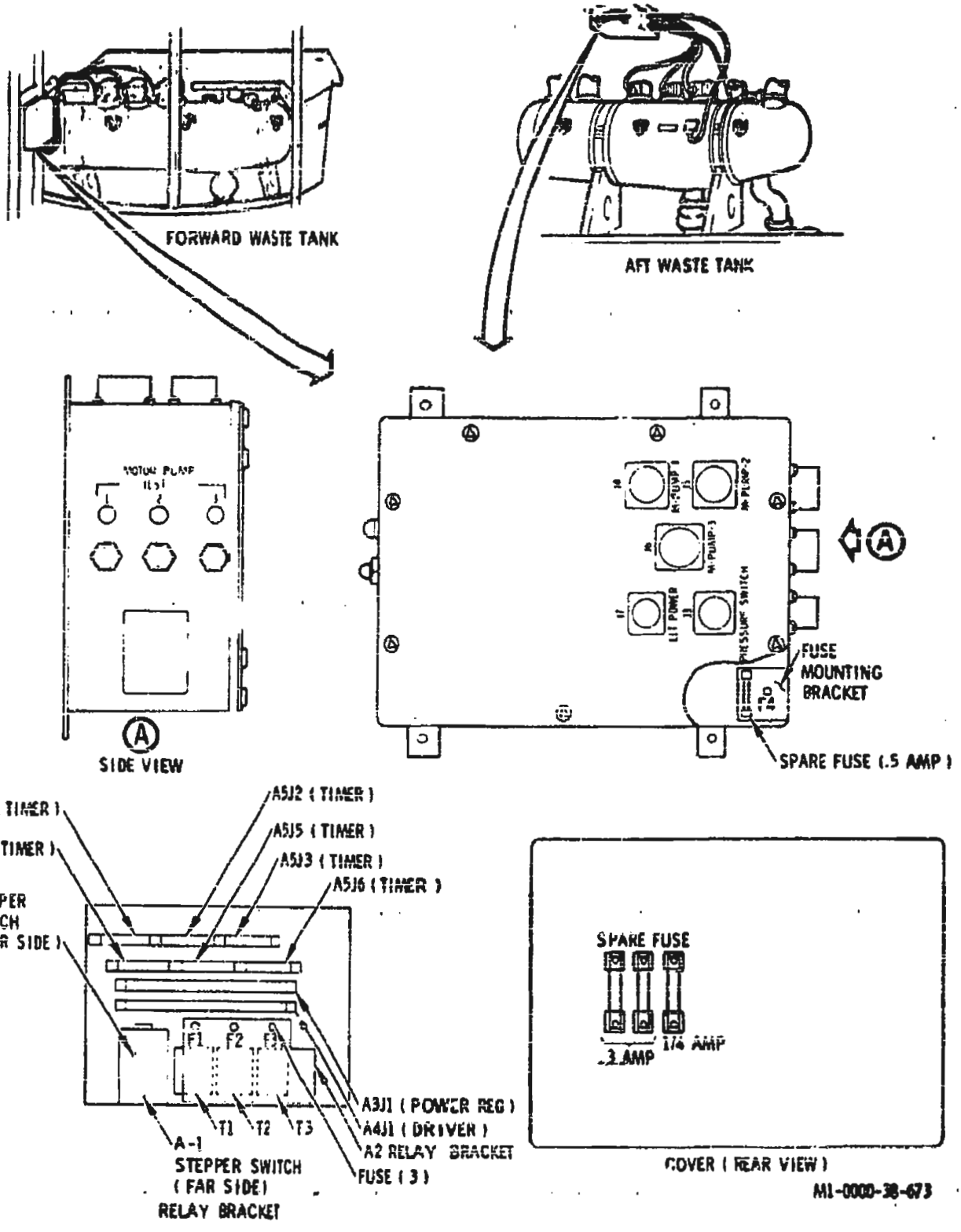
Each control logic box (Ref. Fig. 14) is mounted near the respective waste tank. Cables and harnesses interconnect the lavatory flushing control switches and flushing valve solenoids with the control logic box.

Each control logic box consists of:



M1-0100-38-126

Manual 4-inch Ball Valve
Figure 12



Control Logic Box
Figure 14

CR One 18-second timer card for each lavatory

Three 28V dc solid-state regulated power supply with two regulators

Three 100/150 V dc power supplies

Two motor-driven stepper switches

Two solid-state 4-second time delay

Two zener matrix

Six solid-state drivers

Three power relays

Seven electrical receptacles

Housing box with mounting lugs and cover

Four power fuses with spares

Three BITE switches and lights

One fail-latch relay

Only one of the two 28V dc power supply regulators is necessary to operate the system. The other regulator in each system is redundant and included to increase reliability. The control logic box contains seven electrical connectors provisions (J1-J7). J1, the control function connector, connects the toilet flush switch and the
CR flush valve solenoids to its respective 18-second timer card (one for each toilet). J2, the input power connector, supplies aircraft power 115/200V ac, 400 Hz, 3-phase, 4 AMPS to the box.

J3, the pressure switch connector, connects the pressure switch to the control logic box driver card and the power regulator card.

J4, J5, and J6 connect supply 115/200V ac, 400 Hz, 3-phase power to each MPFCA. J7, connector, connects positive 28V dc through fuse 4 and nevative 28V dc to neutral.

Four power fuses (F1, F2, F3, F4) and four spare fuses (1 - .25 AMP, 1 - .5 AMP, 2 - 3 AMP)

Four (4) fuses (F1, F2, F3, F4) are incorporated in the control logic box. F1, F2, and F3 are mounted on the relay bracket. F1 and F2 are located between the fail latch relay

and indicator light control box. F4 fuse is mounted on the fuse mounting bracket, and located between the power source and power transmitter input.

Four (4) spare fuses are provided in the control logic box. Two 3 AMP and one 0.25 AMP fuses are mounted on the cover subassembly. A 0.50 AMP fuse is mounted on the fuse mounting bracket next to the F4 fuse.

B. Operation

CR (1) Aft Waste Systems Control Logic Box

When the toilet flushing handle in a lavatory is
C actuated, the toilet flushing control switch closes and
C triggers the 18-second timer. Each timer circuit feeds into the zener matrix. The toilet flushing valve solenoid is simultaneously energized which opens the valve in the toilet bowl flushing line. Holding the flushing control handle down completes another circuit that bypasses the timer. If the timer fails, the circuit remains energized only as long as the toilet flushing handle is held down. The pulse passes through the zener matrix and stepper switch No. 1 to select one MPFCA for use in the pump cycle. At the beginning of a new flushing cycle, stepper switch No. 1 receives another pulse to select the next MPFCA in sequence.

If the selected MPFCA does not produce sufficient pressure (7 psi), the pressure control switch closes and provides a signal to the control logic box. A four (4) second time delay is activated, and fail latch relay is energized which activates stepper switch No. 2 and deactivates stepper switch No. 1.

NOTE: Fail latch relay will keep stepper switch No. 1 off line until power is manually turned off.

This will illuminate an indicator light on the FE/SO Panel, and Stepper No. 2 will select another MPFCA. The four (4) second time delay allows pressure to build up to reopen the pressure control switch. If the low pressure condition persists for four (4) more seconds, stepper switch No. 2 activates the next MPFCA in sequence.

NOTE: When the first MPFCA fails during a cycle the second MPFCA will flush for eight (8) seconds. If the first and second MPFCA fails the third will flush for four (4) seconds (four seconds is sufficient for complete flushing).

Only one MPFCA will be energized during any flushing cycle.

The lamp signals a failure mode and an indication that one or more motors have failed in the forward or aft lavatory system. This lamp remains on until the failure is corrected, or until the power is turned off manually. The forward or aft system pump failure indication can be further isolated to the failure source by the use of the BITE features on each of the control logic boxes.

R 17. On aircraft 001-031 without SB38-032, or aircraft with SB38-054
R and SB38-055,
this paragraph is not applicable

17. On aircraft 001-031 with SB38-032 and 032-999,
the forward and aft waste tank auto agitation system

A. Description

R NOTE: With incorporation of SB38-054 and SB38-055, the auto
R agitation system is removed from the aircraft.

The auto agitation system provides a hydraulic circulating action to help suspend solid materials around the base of the MPFCA, to make waste tank dumping operation more efficient.

The auto agitation system consists of a tee fitting, a tube assembly, and nozzle assembly [Ref. Fig. 15 (Sheet 1 and 2)].

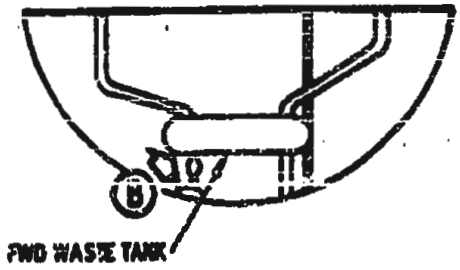
The waste tank auto agitation system is equipped with a separate electrical relay panel located between the control logic box and the waste tank. On the forward waste system, the relay panel connects the forward ground service light switch directly with the right side toilet flush control switch and the control logic box. On the aft waste system, the relay panel connects the aft ground service light switch directly with the Number 2 lavatory toilet flush control switch and the control logic box. The relay panel consists of a control relay, a 5-second time delay relay, and a diode.

B. Operation

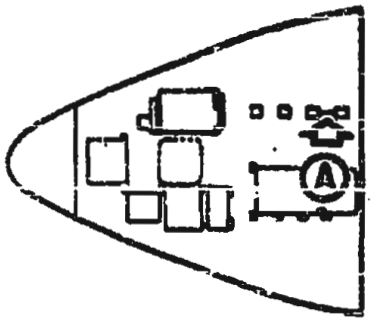
The auto agitation system is operative whenever the toilet flush control handle is actuated and released.

When the toilet flush control handle is actuated, that activates the toilet flush control switch and completes an electrical circuit to open the flush switch solenoid valve, at the same time, the control logic unit supplies power to
C operate one of the three MPFCA units and sets the 18-second
C electronic timer for flushing cycle.

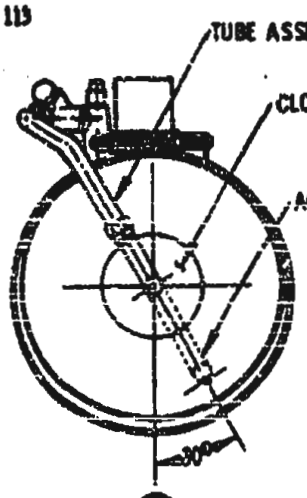
The flush liquid is filtered and pumped directly to the flush manifold on to the applicable toilet to flush and returns to the waste tank. Through the tee fitting, a portion of the filtered flush liquid is directed to the auto agitation system nozzle. The auto agitation system nozzle agitates the flush liquid directly at the base of the MPFCA units. The auto agitation system is operative whenever the ground service light switch is in ON position: When servicing the forward waste tank at the ground service panel, turning ON the service light switch will automatically activate the right side toilet flush control switch. A flush cycle will begin and a portion of the flush liquid will be directed to the auto agitation system nozzle agitating the flush liquid at the base of the MPFCA for more efficient dump. When servicing the aft waste tank from the ground service panel, turning ON the service light switch will automatically activate the Number 2 lavatory toilet flush control switch and a flush cycle will begin, a portion of the flush liquid will be directed to the auto agitation system nozzle providing a more efficient dump.



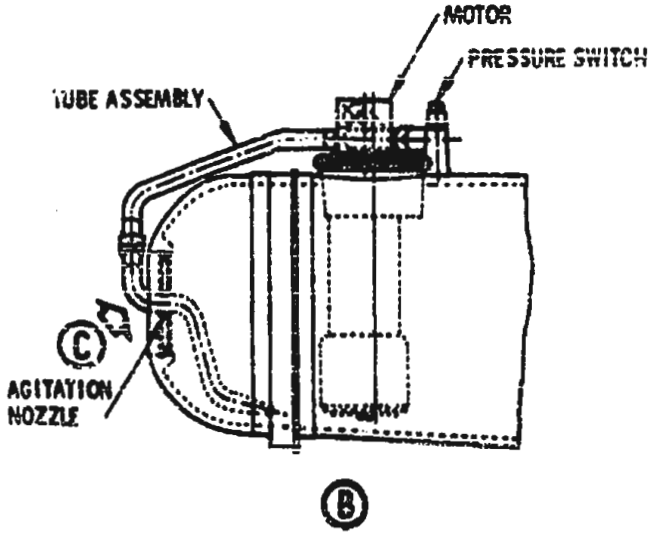
FORWARD WASTE SYSTEM
VIEW LOOKING AFT AT FS 113

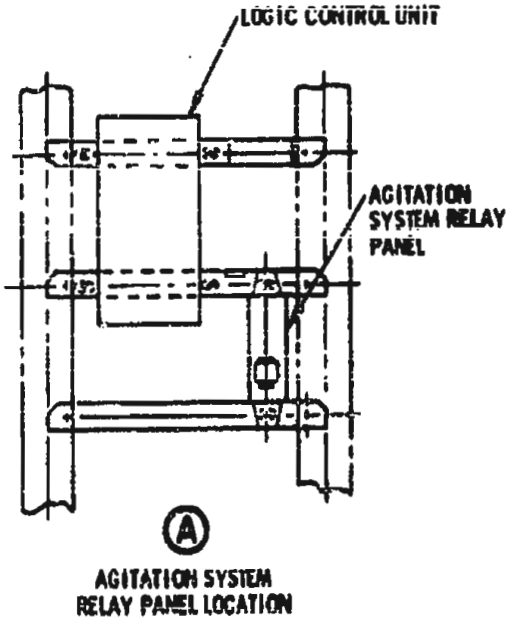


FORWARD ELECTRONIC
SERVICE CENTER
ZONE 113



RIGHT SIDE VIEW
LOOKING INBOARD





AGITATION SYSTEM
RELAY PANEL LOCATION

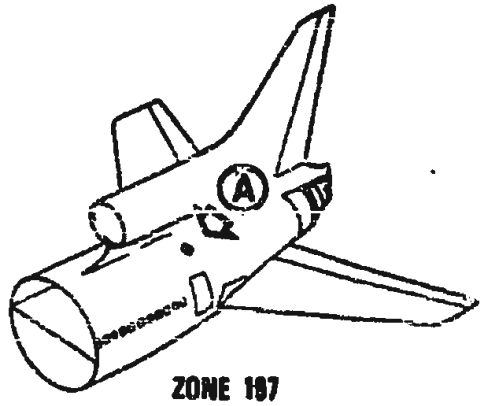
M1-0000-S8-994

R
R
R
R

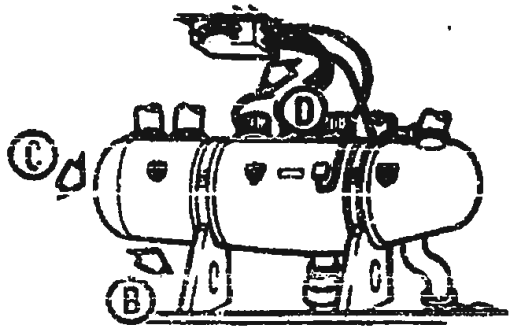
Forward and Aft Waste Tank Auto Agitation System
Figure 15 (Sheet 1)

EFFECTIVITY: 001-031 WITH SB38-032
AND 032-999 OR AIRCRAFT WITHOUT
SB38-054 AND SB38-055

001B

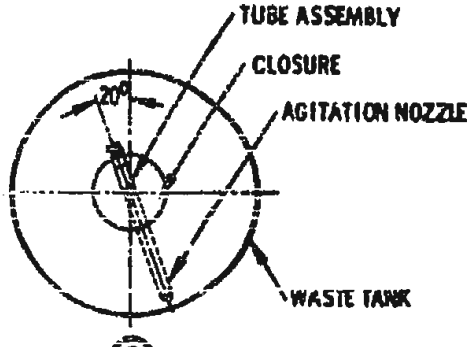


ZONE 187



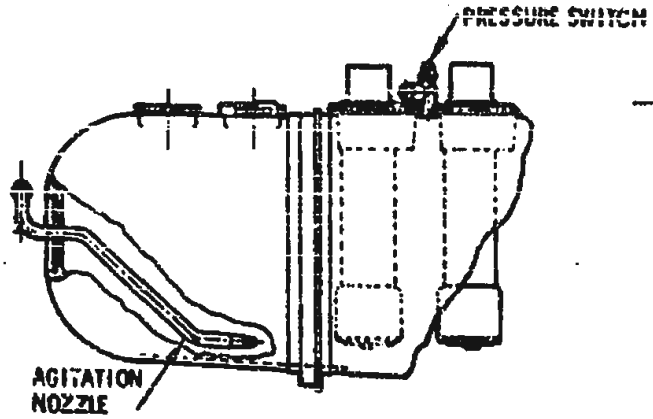
AFT WASTE TANK

(A)



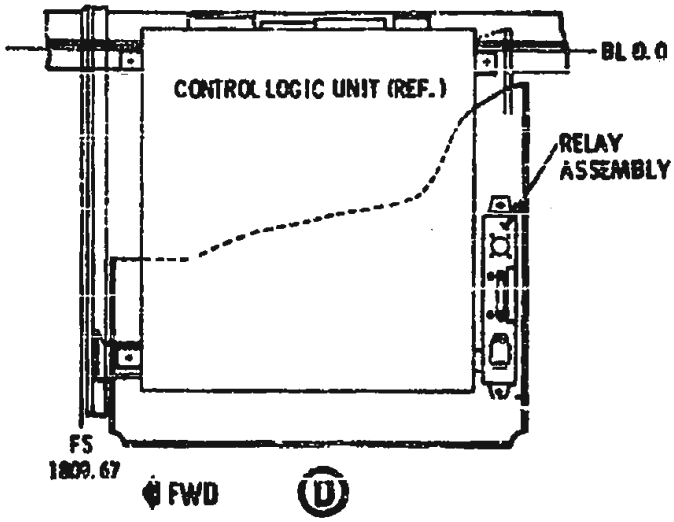
(C)

RIGHT SIDE VIEW
LOOKING INBOARD



(B)

VIEW LOOKING AFT



(D)

LOOKING UP

M1-0000-38-586

R Forward and Aft Waste Tank Auto Agitation System
R Figure 15 (Sheet 2)

WASTE DISPOSAL SYSTEM - FAULT ISOLATION

1. General

The fault isolation diagrams in this section can be used for fault isolation any time a fault is reported or suspected. Before fault isolation is started, the PREREQUISITES listed on the diagram must be fulfilled.

If the flight crew reports a trouble using a FIRM Fault Code number, the number can be found in the FIRM Fault Code Cross Reference Table in the Chapter 38-INDEX.

The FIRM Fault Code Cross Reference Table includes the flight report (fault symptoms) and the exact Section, Figure, Sheet, and Block number where fault isolation should begin. (Refer to the L-1011 Maintenance Manual Introduction for a more detailed explanation on the use of fault isolation diagrams.)

If a fault is reported or suspected and no FIRM Fault Code is available, the function or fault indication can be found in the table below. When a diagram is selected in this manner fault isolation is started at Block 1.

2. Fault Isolation/Identification

Table 101 is a list of all fault isolation procedures and schematics. Figure 101 is component location index and Figure 102 is a component locator diagram for waste disposal system components.

Waste Disposal System Fault Isolation
Table 101

	FIGURE	TITLE
	103	Pump Failure Warning Light On
R	104	One Toilet Inoperative
R	105	Toilets Inoperative
R	106	Toilet Fluid Flushing Pattern Inconsistent
	107	Toilet Flushes Continuously
R	108	Waste Tank Vent System Overflowed

Waste Disposal System Fault Isolation (Cont)
Table 101

	FIGURE	TITLE
R	109	Waste Tank Liquid Level False Indication
R	110	Waste Tank Servicing/Abnormal Operation
	SCHEM 1	Forward Waste Disposal System Electrical Schematic
	SCHEM 2	Aft Waste Disposal System Electrical Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
FORWARD LAVATORIES (2)			
DRAIN NIPPLE HEATER ——— 1	1	FORWARD WASTE PANEL	38-71-18
MOTOR PUMP FILTER ASSEMBLY	3	FORWARD ELECTRONIC SERVICE CENTER, TOP TANK	38-31-08 38-31-09
PRESSURE SWITCH	1	ON RIGHT FLUSH LINE TOP OF TANK	38-31-10
SERVICE PANEL	1	FORWARD OF NOSE LANDING GEAR WELL	
WASTE CONTROL LOGIC UNIT	1	FORWARD ELECTRONIC SERVICE CENTER, RIGHT AND FORWARD OF TANK	38-31-15
WASTE TANK	1	FORWARD ELECTRONIC SERVICE CENTER, AFT END	38-31-06
AFT LAVATORIES (6)			
DRAIN NIPPLE HEATER ——— 1	1	AFT WASTE PANEL	38-71-18
MOTOR PUMP FILTER ASSEMBLY	3	AFT OF AFT CARGO COMPARTMENT, TOP OF WASTE TANK	38-31-08 38-31-09
PRESSURE SWITCH	1	ON RIGHT FLUSH LINE TOP OF TANK	38-31-10
SERVICE PANEL	1	AFT LOWER FUSELAGE	
WASTE CONTROL LOGIC UNIT	1	ON CEILING ABOVE WASTE TANK	38-31-23
WASTE TANK	1	AFT OF AFT CARGO COMPARTMENT, 181AR	38-31-04

NOTE

1 ON AIRCRAFT 001-031 WITH SB 38-050 AND 032-099

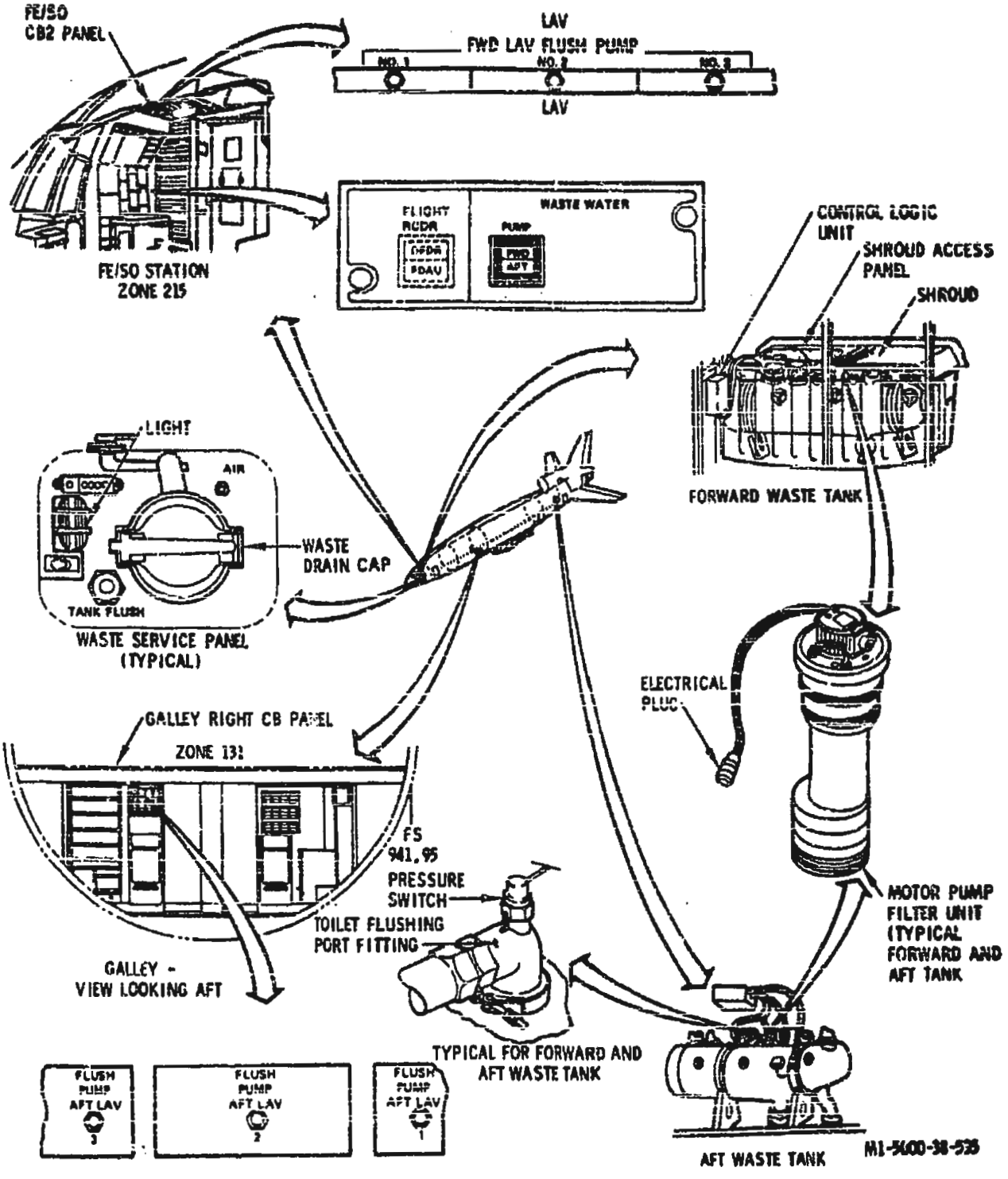
M1-0001-38-684

CR
CR

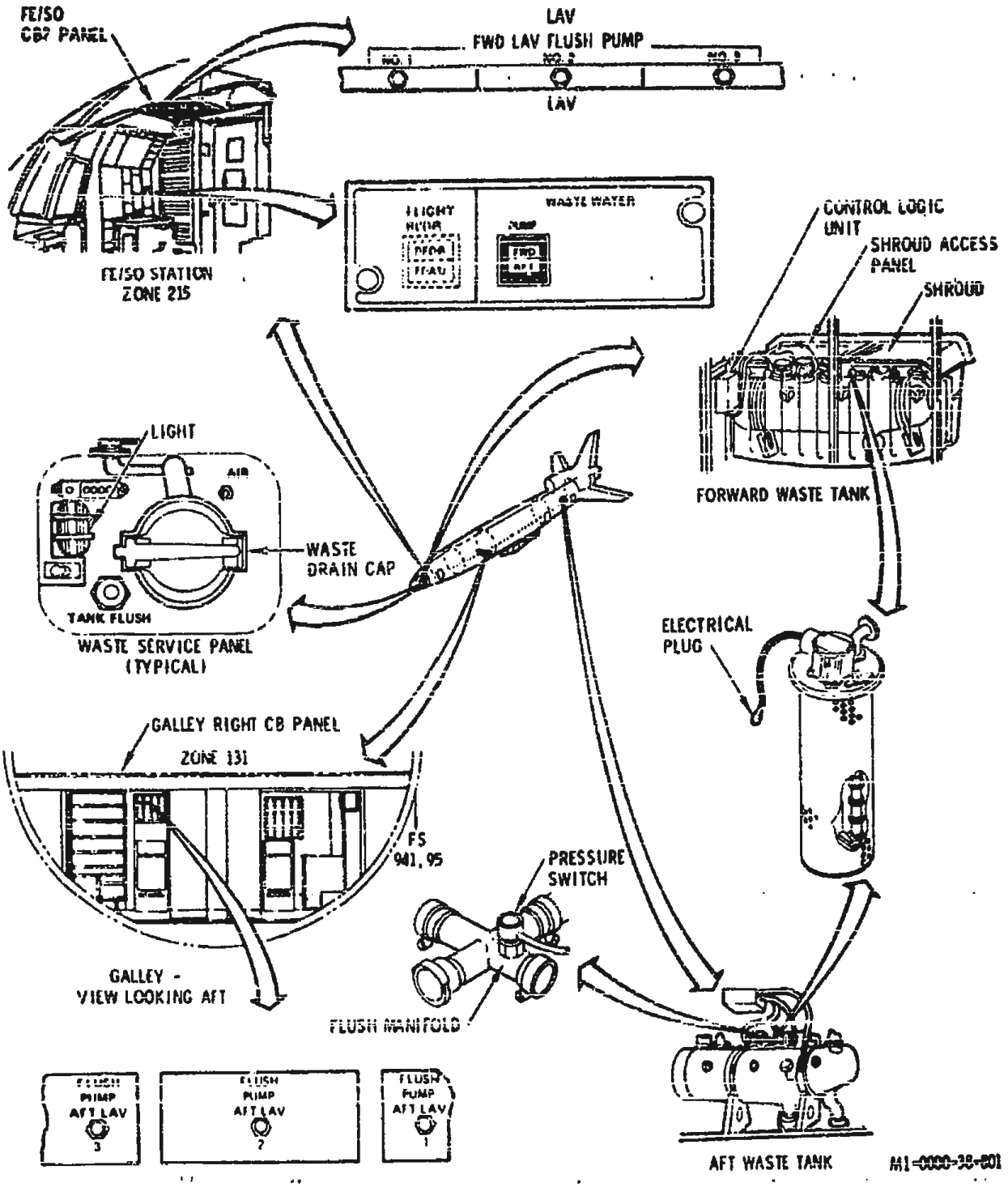
Component Location Index
Figure 101

EFFECTIVITY: ALL

001B



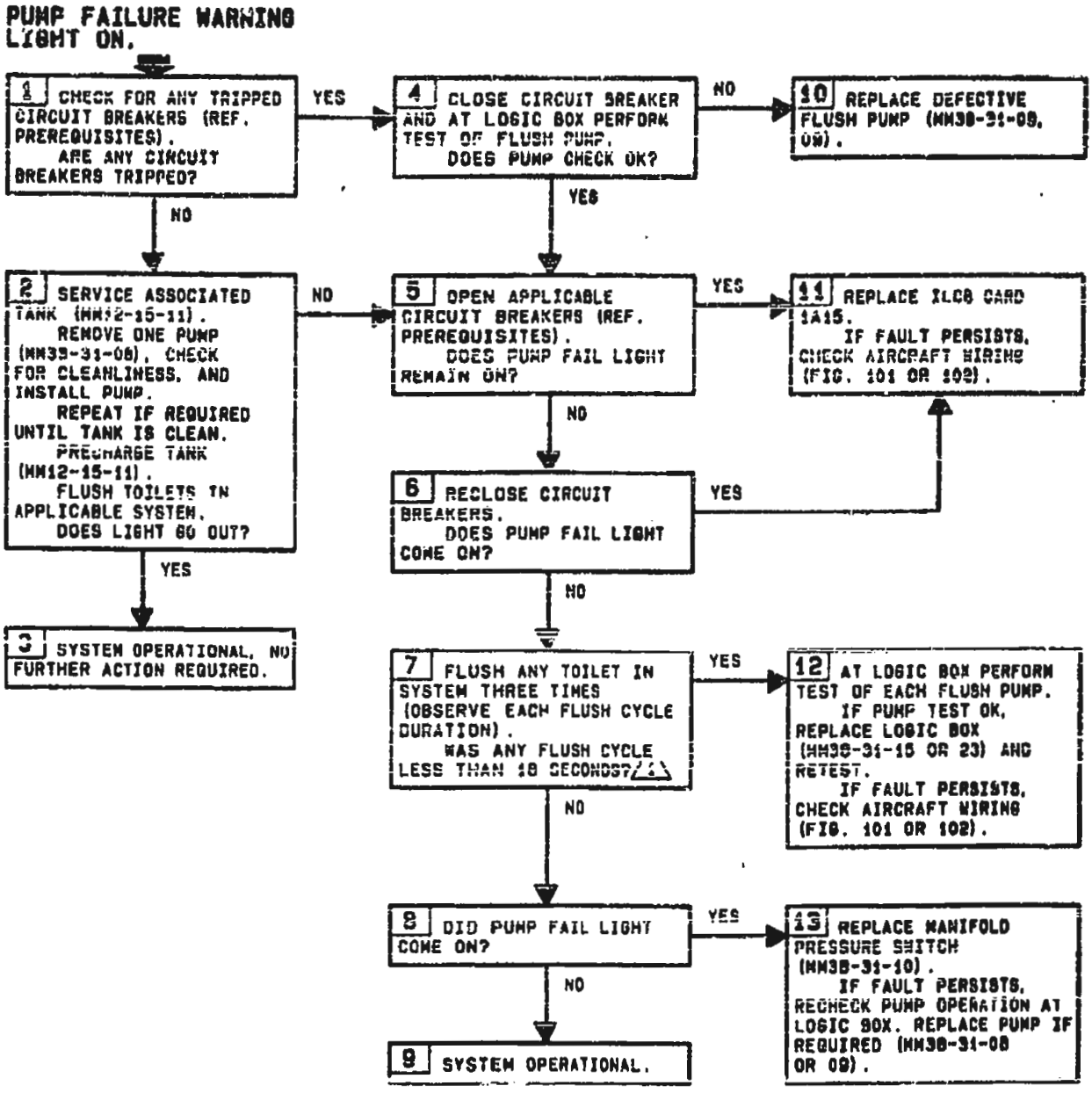
Waste Disposal System Component Locator
Figure 102



R Waste Disposal System Component Locator
R Figure 102

EFFECTIVITY: WITH SB38-054

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: C02: 03, B6, B9- FWD LAV PUMPS
GALLEY RIGHT: 58, 88, 118-AFT LAV PUMPS


PUMP FAILURE WARNING LIGHT ON.
1 CHECK FOR ANY TRIPPED CIRCUIT BREAKERS (REF. PREREQUISITES). ARE ANY CIRCUIT BREAKERS TRIPPED?
YES
NO
2 SERVICE ASSOCIATED TANK (MM12-15-11). REMOVE ONE PUMP (MM38-31-08), CHECK FOR CLEANLINESS, AND INSTALL PUMP. REPEAT IF REQUIRED UNTIL TANK IS CLEAN. PRECHARGE TANK (MM12-15-11). FLUSH TOILETS IN APPLICABLE SYSTEM. DOES LIGHT GO OUT?
YES
3 SYSTEM OPERATIONAL, NO FURTHER ACTION REQUIRED.
4 CLOSE CIRCUIT BREAKER AND AT LOGIC BOX PERFORM TEST OF FLUSH PUMP. DOES PUMP CHECK OK?
NO
10 REPLACE DEFECTIVE FLUSH PUMP (MM38-31-09, 09).
YES
5 OPEN APPLICABLE CIRCUIT BREAKERS (REF. PREREQUISITES). DOES PUMP FAIL LIGHT REMAIN ON?
YES
11 REPLACE ILC8 CARD 1A15. IF FAULT PERSISTS, CHECK AIRCRAFT WIRING (FIG. 101 OR 102).
NO
6 RECLOSE CIRCUIT BREAKERS. DOES PUMP FAIL LIGHT COME ON?
YES
NO
7 FLUSH ANY TOILET IN SYSTEM THREE TIMES (OBSERVE EACH FLUSH CYCLE DURATION). WAS ANY FLUSH CYCLE LESS THAN 18 SECONDS? 1
YES
12 AT LOGIC BOX PERFORM TEST OF EACH FLUSH PUMP. IF PUMP TEST OK, REPLACE LOGIC BOX (MM38-31-15 OR 23) AND RETEST. IF FAULT PERSISTS, CHECK AIRCRAFT WIRING (FIG. 101 OR 102).
NO
8 DID PUMP FAIL LIGHT COME ON?
YES
13 REPLACE MANIFOLD PRESSURE SWITCH (MM38-31-10). IF FAULT PERSISTS, RECHECK PUMP OPERATION AT LOGIC BOX. REPLACE PUMP IF REQUIRED (MM38-31-08 OR 09).
NO
9 SYSTEM OPERATIONAL.

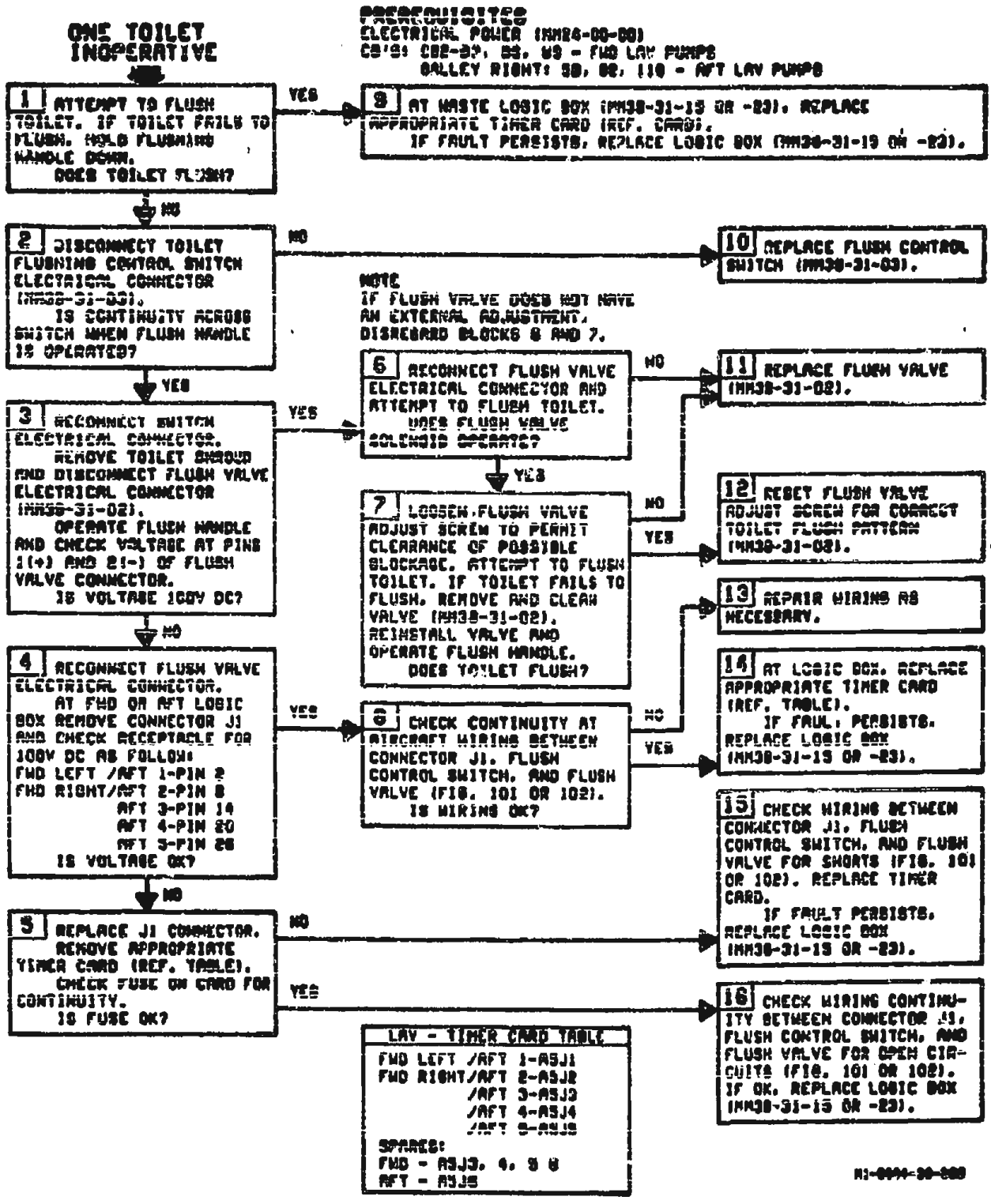
1 NOTE
12 SECONDS IF H.O. 71803 NOT ACCOMPLISHED.

M1-0000-38-879

CR Pump Failure Warning Light On
CR Figure 103

EFFECTIVITY: ALL

001B


ONE TOILET INOPERATIVE
PREREQUISITES
ELECTRICAL POWER (MM24-00-00)
CB'S: C02-37, 53, 69 - FWD LAV PUMPS
GALLEY RIGHT: 38, 52, 110 - AFT LAV PUMPS
1 ATTEMPT TO FLUSH TOILET. IF TOILET FAILS TO FLUSH, HOLD FLUSHING HANDLE DOWN.
DOES TOILET FLUSH?
YES
NO
9 AT WASTE LOGIC BOX (MM38-31-19 OR -23), REPLACE APPROPRIATE TIMER CARD (REF. CARD).
IF FAULT PERSISTS, REPLACE LOGIC BOX (MM38-31-19 OR -23).
2 DISCONNECT TOILET FLUSHING CONTROL SWITCH ELECTRICAL CONNECTOR (MM38-31-03).
IS CONTINUITY ACROSS SWITCH WHEN FLUSH HANDLE IS OPERATED?
NO
10 REPLACE FLUSH CONTROL SWITCH (MM38-31-03).
YES
NOTE
IF FLUSH VALVE DOES NOT HAVE AN EXTERNAL ADJUSTMENT, DISREGARD BLOCKS 8 AND 7.
3 RECONNECT SWITCH ELECTRICAL CONNECTOR.
REMOVE TOILET SHROUD AND DISCONNECT FLUSH VALVE ELECTRICAL CONNECTOR (MM38-31-02).
OPERATE FLUSH HANDLE AND CHECK VOLTAGE AT PINS 1(+) AND 2(-) OF FLUSH VALVE CONNECTOR.
IS VOLTAGE 100V DC?
YES
6 RECONNECT FLUSH VALVE ELECTRICAL CONNECTOR AND ATTEMPT TO FLUSH TOILET.
DOES FLUSH VALVE SOLENOID OPERATE?
NO
11 REPLACE FLUSH VALVE (MM38-31-02).
YES
7 LOOSEN FLUSH VALVE ADJUST SCREW TO PERMIT CLEARANCE OF POSSIBLE BLOCKAGE. ATTEMPT TO FLUSH TOILET. IF TOILET FAILS TO FLUSH, REMOVE AND CLEAN VALVE (MM38-31-02). REINSTALL VALVE AND OPERATE FLUSH HANDLE.
DOES TOILET FLUSH?
NO
12 RESET FLUSH VALVE ADJUST SCREW FOR CORRECT TOILET FLUSH PATTERN (MM38-31-02).
YES
13 REPAIR WIRING AS NECESSARY.
4 RECONNECT FLUSH VALVE ELECTRICAL CONNECTOR.
AT FWD OR AFT LOGIC BOX REMOVE CONNECTOR J1 AND CHECK RECEPTACLE FOR 100V DC AS FOLLOW:
FWD LEFT /AFT 1-PIN 2
FWD RIGHT/AFT 2-PIN 8
AFT 3-PIN 14
AFT 4-PIN 20
AFT 5-PIN 26
IS VOLTAGE OK?
YES
8 CHECK CONTINUITY AT AIRCRAFT WIRING BETWEEN CONNECTOR J1, FLUSH CONTROL SWITCH, AND FLUSH VALVE (FIG. 101 OR 102).
IS WIRING OK?
NO
14 AT LOGIC BOX, REPLACE APPROPRIATE TIMER CARD (REF. TABLE).
IF FAUL, PERSISTS, REPLACE LOGIC BOX (MM38-31-19 OR -23).
YES
15 CHECK WIRING BETWEEN CONNECTOR J1, FLUSH CONTROL SWITCH, AND FLUSH VALVE FOR SHORTS (FIG. 101 OR 102). REPLACE TIMER CARD.
IF FAULT PERSISTS, REPLACE LOGIC BOX (MM38-31-19 OR -23).
5 REPLACE J1 CONNECTOR.
REMOVE APPROPRIATE TIMER CARD (REF. TABLE).
CHECK FUSE ON CARD FOR CONTINUITY.
IS FUSE OK?
NO
YES
16 CHECK WIRING CONTINUITY BETWEEN CONNECTOR J1, FLUSH CONTROL SWITCH, AND FLUSH VALVE FOR OPEN CIRCUITS (FIG. 101 OR 102). IF OK, REPLACE LOGIC BOX (MM38-31-19 OR -23).
LAV - TIMER CARD TABLE
FWD LEFT /AFT 1-A5J1
FWD RIGHT/AFT 2-A5J2
/AFT 3-A5J3
/AFT 4-A5J4
/AFT 5-A5J5
SPARES:
FWD - A5J3, 4, 5 &
AFT - A5J5

One Toilet Inoperative
Figure 104

R EFFECTIVITY: ALL
R
0018

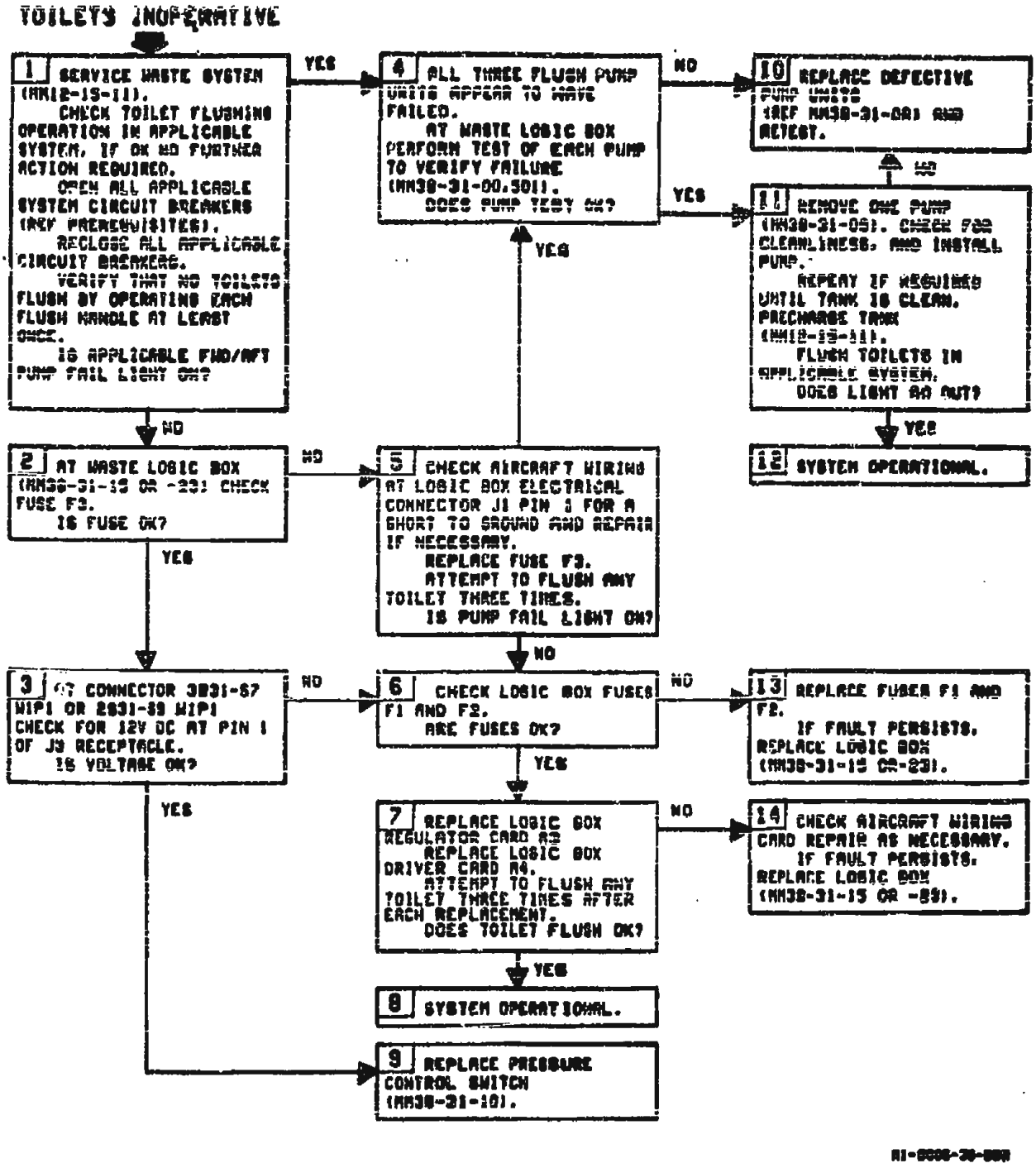
PREREQUISITES

ELECTRICAL POWER (38-00-00-00)

CB'S: CB2-83, 86, 88-FWD LAV PUMPS

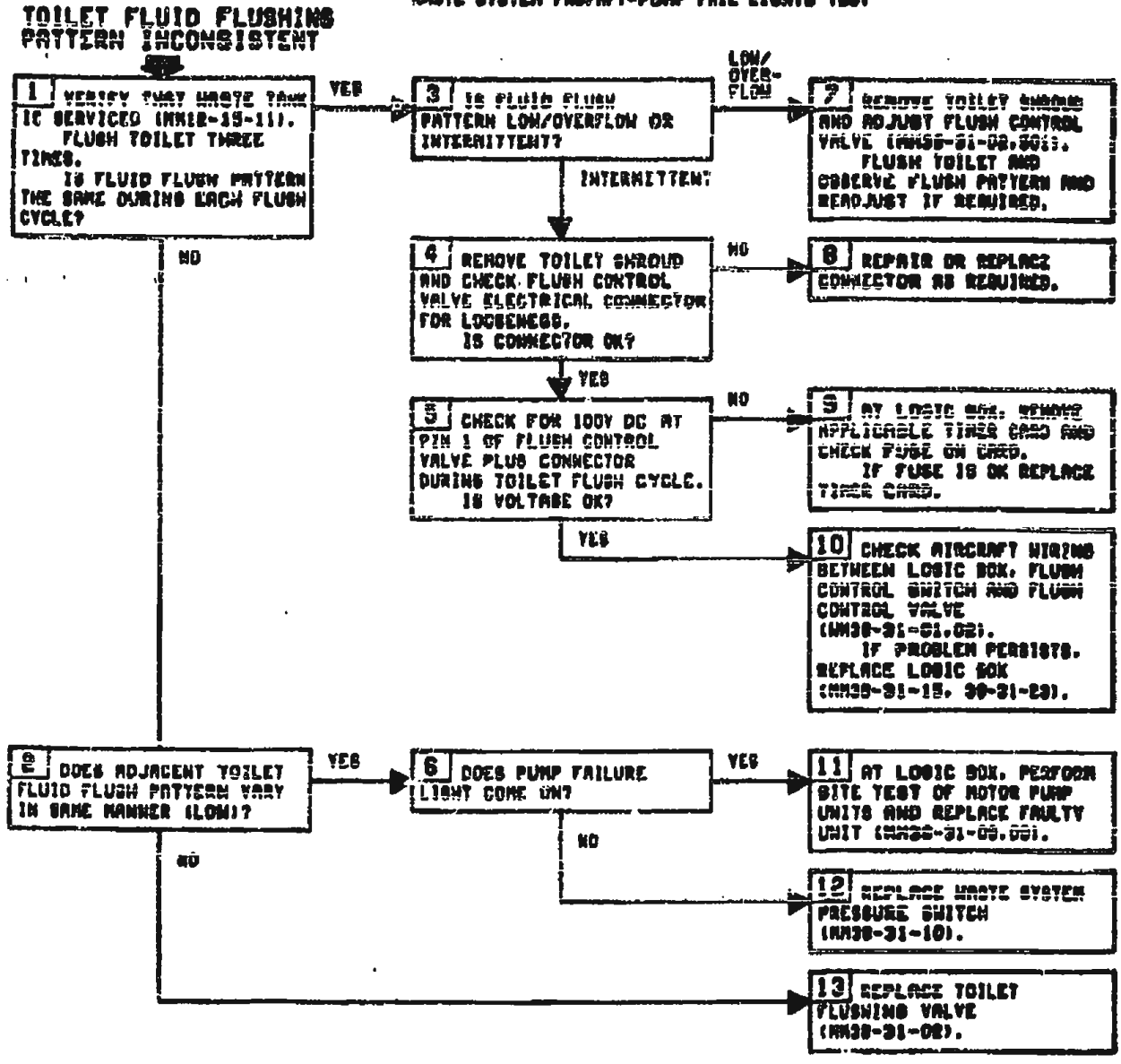
GALLEY RIGHT: 88, 89, 10-AFT LAV PUMPS

WASTE SYSTEM FWD/AFT - PUMP FAIL LIGHTS TEST


TOILETS INOPERATIVE
1 SERVICE WASTE SYSTEM (MM18-19-11). CHECK TOILET FLUSHING OPERATION IN APPLICABLE SYSTEM. IF OK NO FURTHER ACTION REQUIRED. OPEN ALL APPLICABLE SYSTEM CIRCUIT BREAKERS (REF PREREQUISITES). RECLOSE ALL APPLICABLE CIRCUIT BREAKERS. VERIFY THAT NO TOILETS FLUSH BY OPERATING EACH FLUSH HANDLE AT LEAST ONCE. IS APPLICABLE FWD/AFT PUMP FAIL LIGHT ON?
YES
NO
2 AT WASTE LOGIC BOX (MM38-31-19 OR -231) CHECK FUSE F3. IS FUSE OK?
NO
YES
3 AT CONNECTOR 3831-67 WIP1 OR 2831-89 WIP1 CHECK FOR 12V DC AT PIN 1 OF J9 RECEPTACLE. IS VOLTAGE ON?
NO
YES
4 ALL THREE FLUSH PUMP UNITS APPEAR TO HAVE FAILED. AT WASTE LOGIC BOX PERFORM TEST OF EACH PUMP TO VERIFY FAILURE (MM38-31-00.501). DOES PUMP TEST OK?
NO
YES
5 CHECK AIRCRAFT WIRING AT LOGIC BOX ELECTRICAL CONNECTOR J1 PIN 1 FOR A SHORT TO GROUND AND REPAIR IF NECESSARY. REPLACE FUSE F3. ATTEMPT TO FLUSH ANY TOILET THREE TIMES. IS PUMP FAIL LIGHT ON?
NO
YES
6 CHECK LOGIC BOX FUSES F1 AND F2. ARE FUSES OK?
NO
YES
7 REPLACE LOGIC BOX REGULATOR CARD A2 REPLACE LOGIC BOX DRIVER CARD A4. ATTEMPT TO FLUSH ANY TOILET THREE TIMES AFTER EACH REPLACEMENT. DOES TOILET FLUSH OK?
NO
YES
8 SYSTEM OPERATIONAL.
9 REPLACE PRESSURE CONTROL SWITCH (MM38-31-10).
10 REPLACE DEFECTIVE PUMP UNITS (REF MM38-31-00) AND RETEST.
NO
YES
11 REMOVE ONE PUMP (MM38-31-05). CHECK FOR CLEANLINESS, AND INSTALL PUMP. REPEAT IF REQUIRED UNTIL TANK IS CLEAN. PRECHARGE TANK (MM18-19-11). FLUSH TOILETS IN APPLICABLE SYSTEM. DOES LIGHT GO OUT?
YES
12 SYSTEM OPERATIONAL.
13 REPLACE FUSES F1 AND F2. IF FAULT PERSISTS, REPLACE LOGIC BOX (MM38-31-19 OR-231).
14 CHECK AIRCRAFT WIRING CARD REPAIR AS NECESSARY. IF FAULT PERSISTS, REPLACE LOGIC BOX (MM38-31-19 OR -89).

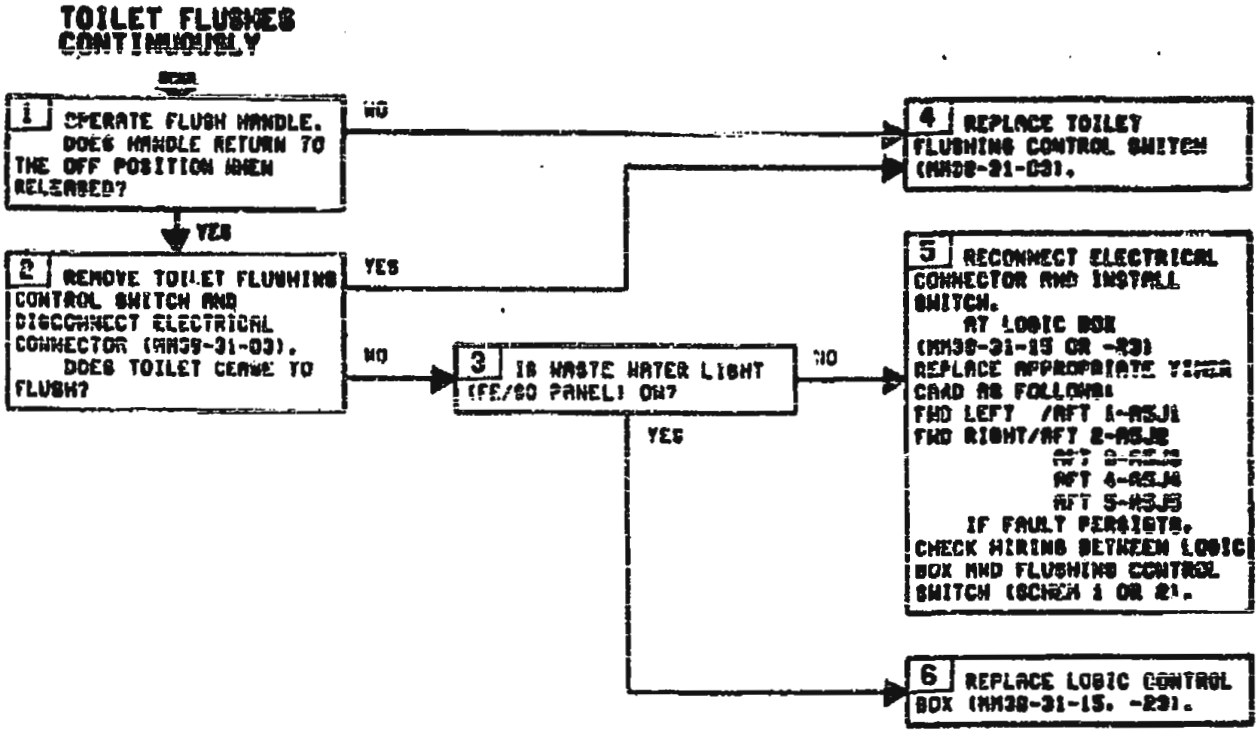
Toilets Inoperative
Figure 105

PREREQUISITES
ELECTRICAL POWER (AMM24-41-00)
CO'S: CMP-02.00.00-FWD LAV PUMP
GALLEY RIGHT 50.00.110-AFT LAV PUMP
WASTE SYSTEM FWD/AFT-PUMP FAIL LIGHTS TEST


TOILET FLUID FLUSHING PATTERN INCONSISTENT
1 VERIFY THAT WASTE TANK IS SERVICED (AMM18-15-11). FLUSH TOILET THREE TIMES. IS FLUID FLUSH PATTERN THE SAME DURING EACH FLUSH CYCLE?
YES
3 IS FLUID FLUSH PATTERN LOW/OVERFLOW OR INTERMITTENT?
LOW/OVER-FLOW
7 REMOVE TOILET SHROUD AND ADJUST FLUSH CONTROL VALVE (AMM38-31-02.001). FLUSH TOILET AND OBSERVE FLUSH PATTERN AND READJUST IF REQUIRED.
INTERMITTENT
4 REMOVE TOILET SHROUD AND CHECK FLUSH CONTROL VALVE ELECTRICAL CONNECTOR FOR LOOSENESS. IS CONNECTOR OK?
NO
8 REPAIR OR REPLACE CONNECTOR AS REQUIRED.
YES
5 CHECK FOR 100V DC AT PIN 1 OF FLUSH CONTROL VALVE PLUG CONNECTOR DURING TOILET FLUSH CYCLE. IS VOLTAGE OK?
NO
9 AT LOGIC BOX, REMOVE APPLICABLE TIMER CARD AND CHECK FUSE ON CARD. IF FUSE IS OK REPLACE TIMER CARD.
YES
10 CHECK AIRCRAFT WIRING BETWEEN LOGIC BOX, FLUSH CONTROL SWITCH AND FLUSH CONTROL VALVE (AMM38-31-01.021). IF PROBLEM PERSISTS, REPLACE LOGIC BOX (AMM38-31-15, 38-31-23).
NO
2 DOES ADJACENT TOILET FLUID FLUSH PATTERN VARY IN SAME MANNER (LOW)?
YES
6 DOES PUMP FAILURE LIGHT COME ON?
YES
11 AT LOGIC BOX, PERFORM SITE TEST OF MOTOR PUMP UNITS AND REPLACE FAULTY UNIT (AMM38-31-05.001).
NO
12 REPLACE WASTE SYSTEM PRESSURE SWITCH (AMM38-31-10).
NO
13 REPLACE TOILET FLUSHING VALVE (AMM38-31-02).

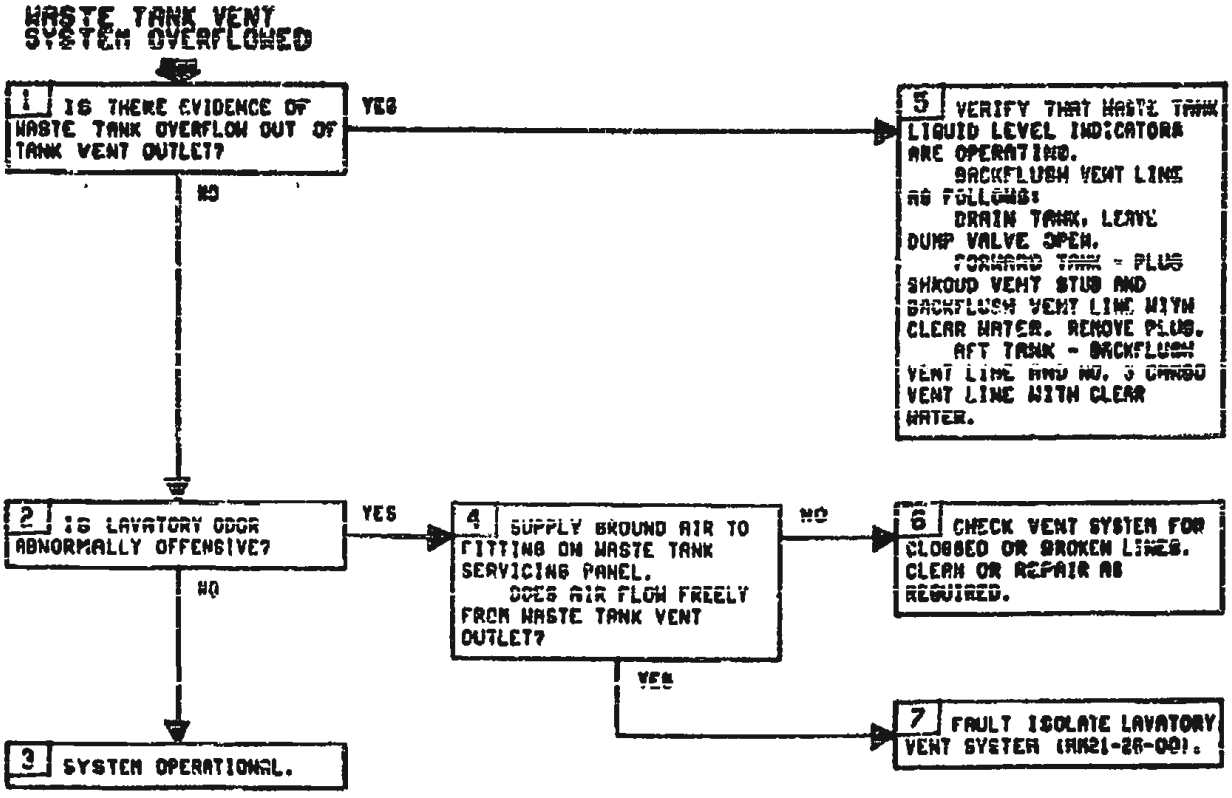
Toilet Fluid Flushing Pattern Inconsistent
Figure 106

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: C82-33, D6, D8 - FWD LAV PUMPS
GALLEY RIGHT: 58, 88, 118 - AFT LAV PUMPS


TOILET FLUSHES CONTINUOUSLY
1 OPERATE FLUSH HANDLE. DOES HANDLE RETURN TO THE OFF POSITION WHEN RELEASED?
NO
YES
2 REMOVE TOILET FLUSHING CONTROL SWITCH AND DISCONNECT ELECTRICAL CONNECTOR (MM38-31-03). DOES TOILET CEASE TO FLUSH?
YES
NO
3 IS WASTE WATER LIGHT (FE/SO PANEL) ON?
NO
YES
4 REPLACE TOILET FLUSHING CONTROL SWITCH (MM38-21-03).
5 RECONNECT ELECTRICAL CONNECTOR AND INSTALL SWITCH.
AT LOGIC BOX (MM38-31-15 OR -23) REPLACE APPROPRIATE FUSE CARD AS FOLLOWS:
FWD LEFT /AFT 1-A5J1
FWD RIGHT/AFT 2-A5J2
AFT 4-A5J4
AFT 5-A5J5
IF FAULT PERSISTS, CHECK WIRING BETWEEN LOGIC BOX AND FLUSHING CONTROL SWITCH (SCHEM 1 OR 2).
6 REPLACE LOGIC CONTROL BOX (MM38-31-15, -23).

Toilet Flushes Continuously
Figure 107

PREREQUISITES
ELECTRICAL POWER (AMM24-41-00)
CB'S: C02-R4, B3, B2, B3-FWD LAV PUMPS
GALLEY RIGHT: 50, 60, J10-AFT LAV PUMP

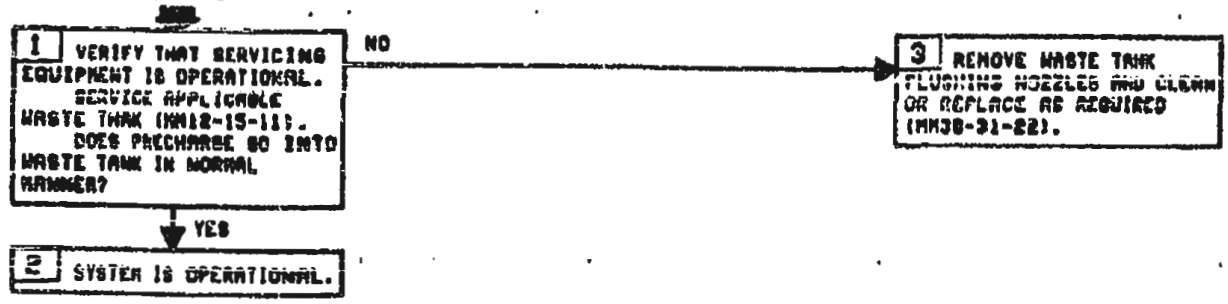

WASTE TANK VENT SYSTEM OVERFLOWED
1 IS THERE EVIDENCE OF WASTE TANK OVERFLOW OUT OF TANK VENT OUTLET?
YES
NO
5 VERIFY THAT WASTE TANK LIQUID LEVEL INDICATORS ARE OPERATING.
BACKFLUSH VENT LINE AS FOLLOWS:
DRAIN TANK, LEAVE DUMP VALVE OPEN.
FORWARD TANK - PLUG SHROUD VENT STUB AND BACKFLUSH VENT LINE WITH CLEAR WATER. REMOVE PLUG.
AFT TANK - BACKFLUSH VENT LINE AND NO. 3 CARGO VENT LINE WITH CLEAR WATER.
2 IS LAVATORY ODOR ABNORMALLY OFFENSIVE?
YES
NO
4 SUPPLY GROUND AIR TO FITTING ON WASTE TANK SERVICING PANEL.
DOES AIR FLOW FREELY FROM WASTE TANK VENT OUTLET?
NO
YES
6 CHECK VENT SYSTEM FOR CLOGGED OR BROKEN LINES. CLEAN OR REPAIR AS REQUIRED.
7 FAULT ISOLATE LAVATORY VENT SYSTEM (AMM21-26-00).
3 SYSTEM OPERATIONAL.

AI-0301-38-100

Waste Tank Vent System Overflowed
Figure 108

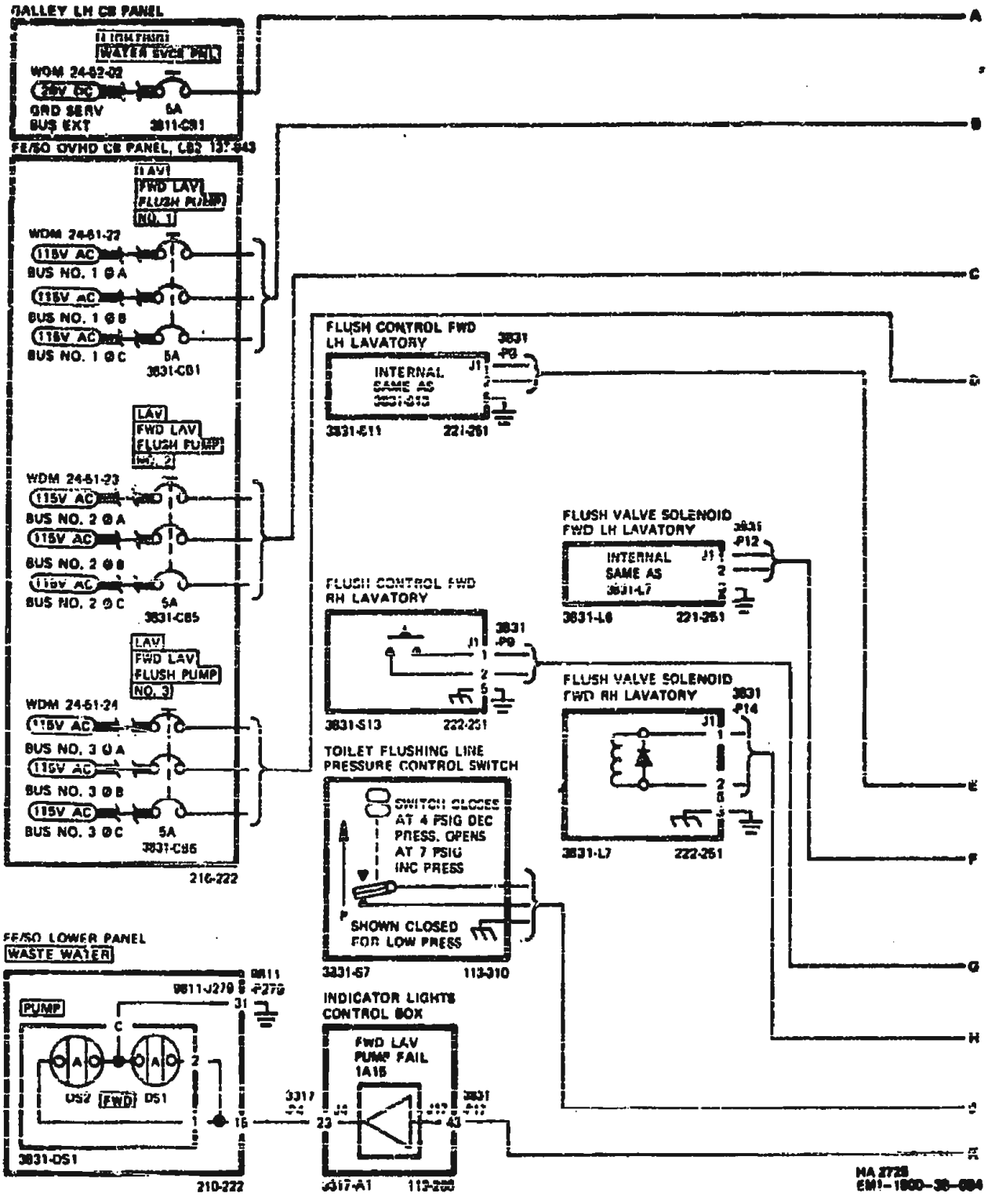
PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: CD2-R4

WASTE TANK SERVICING FAULT ISOLATION


1 VERIFY THAT SERVICING EQUIPMENT IS OPERATIONAL. SERVICE APPLICABLE WASTE TANK (MM12-15-11). DOES PRECHARGE GO INTO WASTE TANK IN NORMAL MANNER?
NO
3 REMOVE WASTE TANK FLUSHING NOZZLES AND CLEAN OR REPLACE AS REQUIRED (MM38-31-22).
YES
2 SYSTEM IS OPERATIONAL.

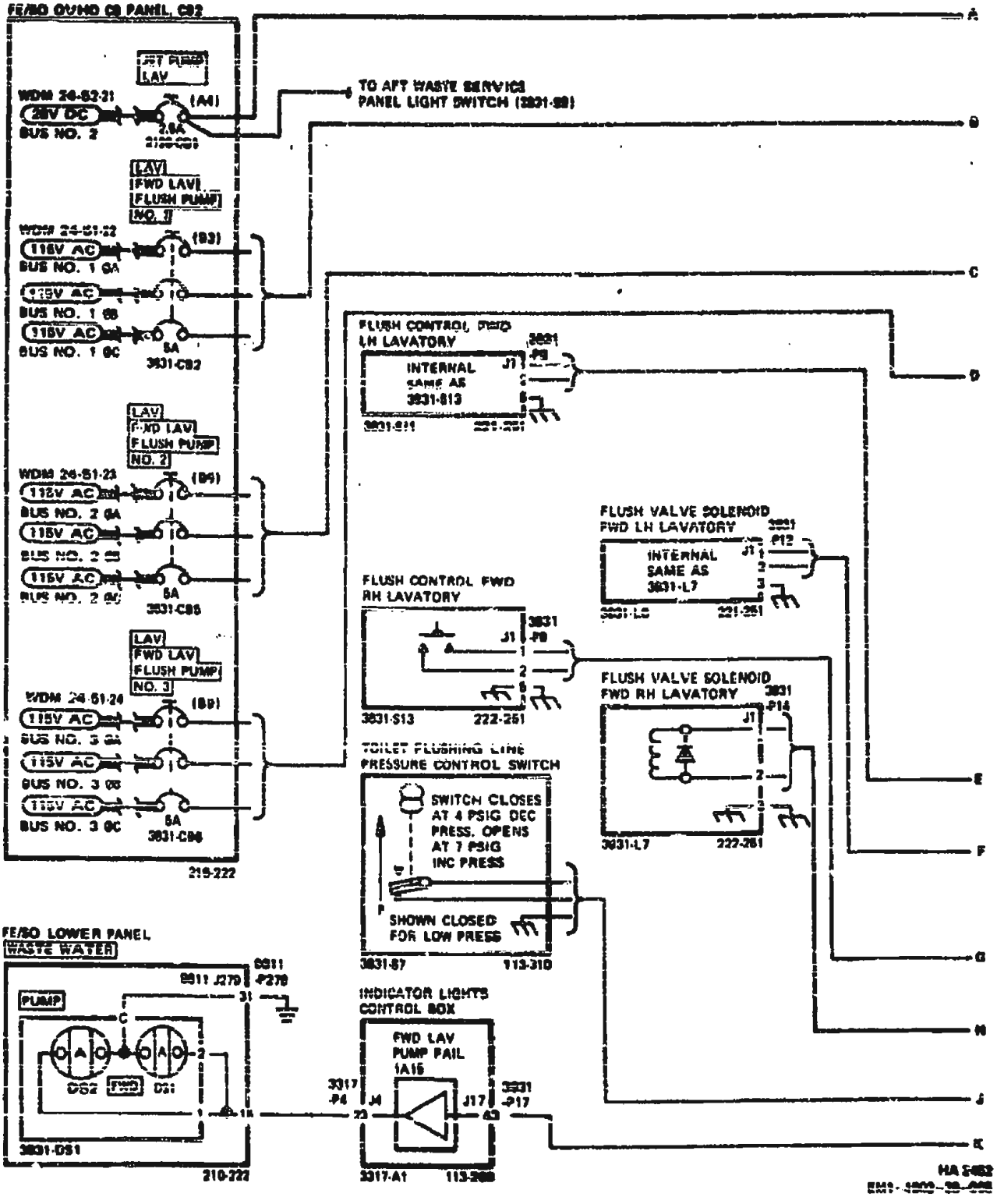
M1-0008-38-004

Waste Tank Servicing/Abnormal Operation
Figure 109



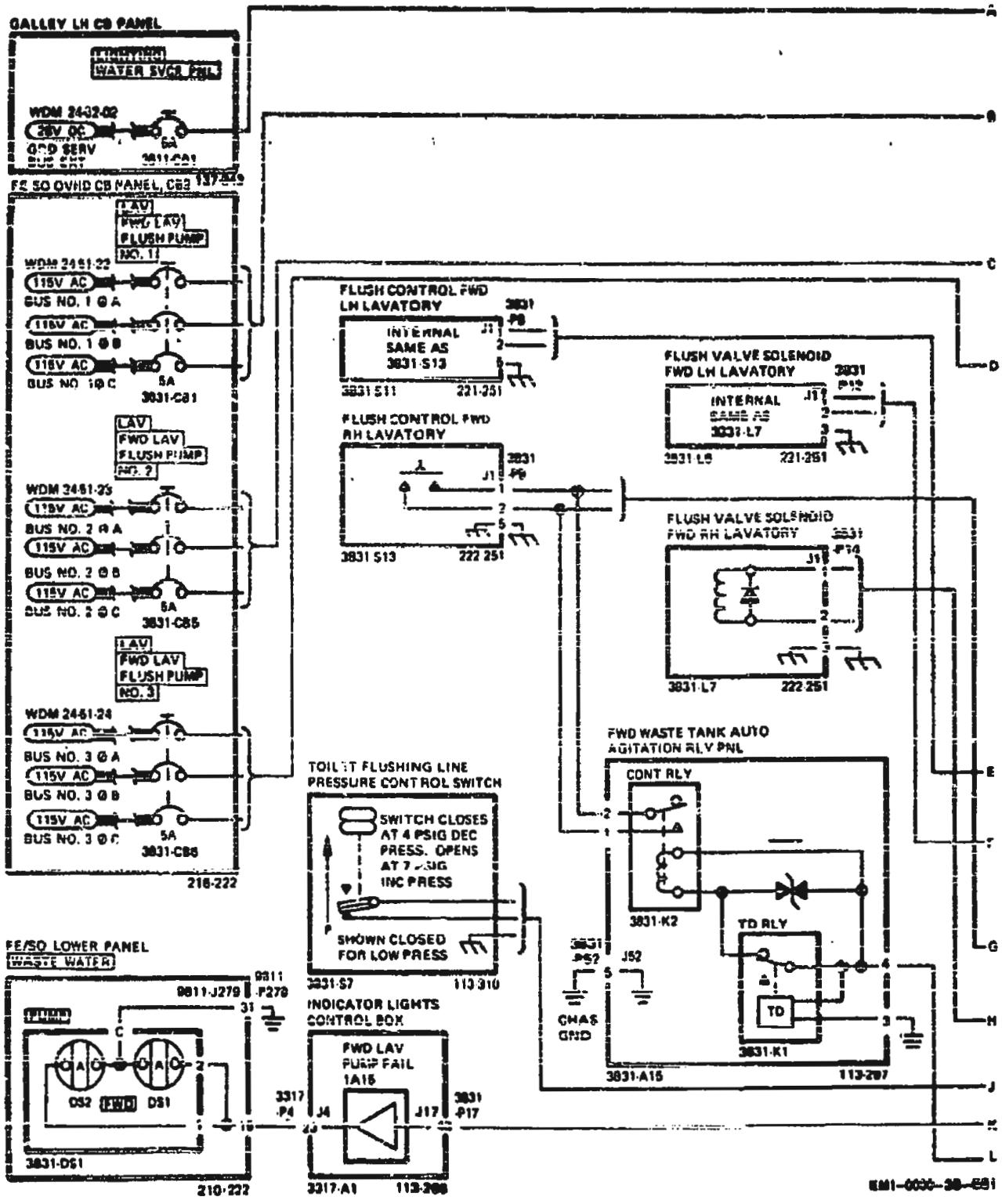
Forward Waste Disposal System Electrical Schematic
SCHEM 1 (Sheet 1)

R EFFECTIVITY: 001-006 WITHOUT SB38-032/
R OR 001-006 WITH SB38-055
001B



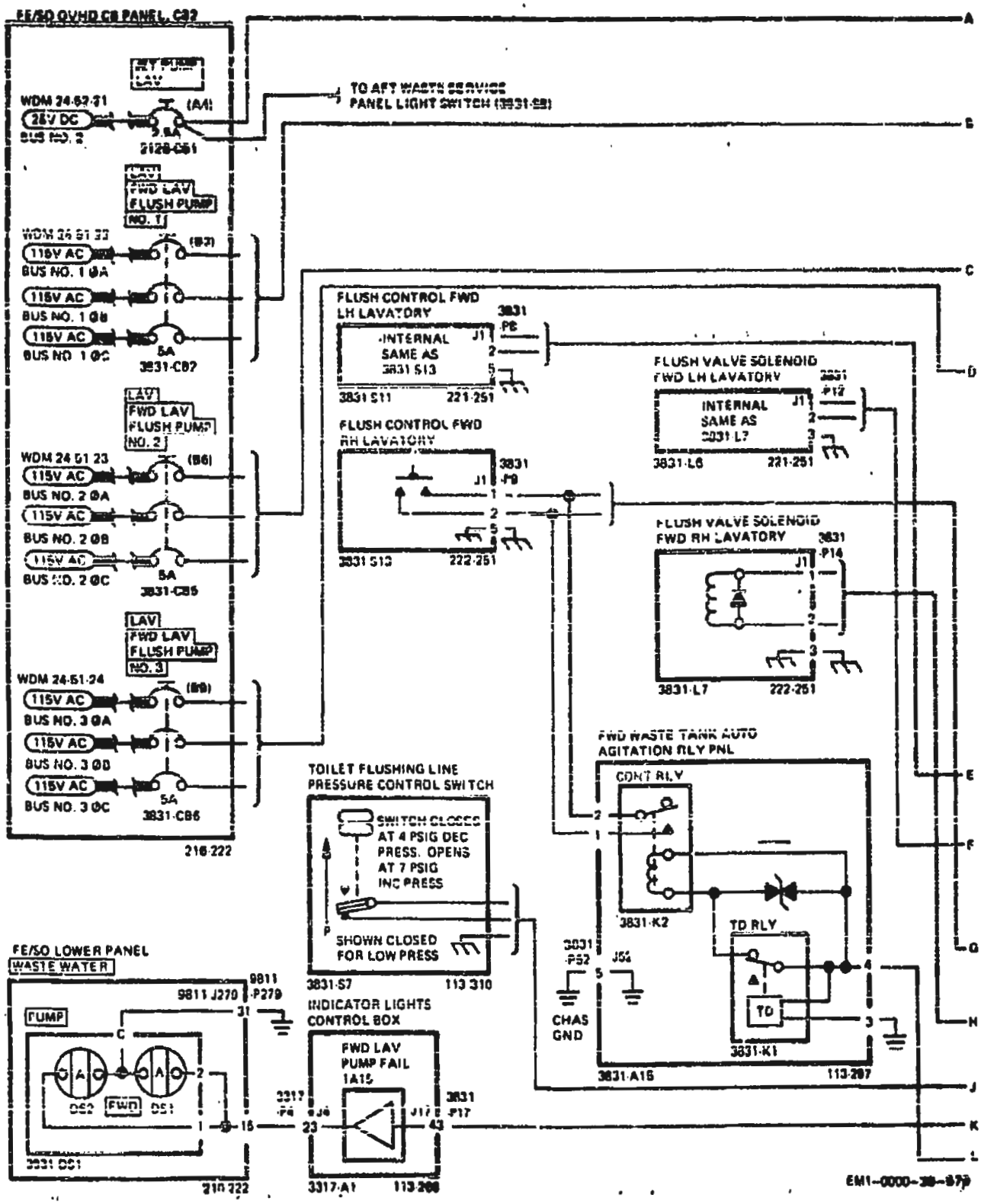
Forward Waste Disposal System Electrical Schematic
SCHEM 1 (Sheet 1)

EFFECTIVITY: 007-031 WITHOUT SB38-032/
OR 007-999 WITH SB38-055



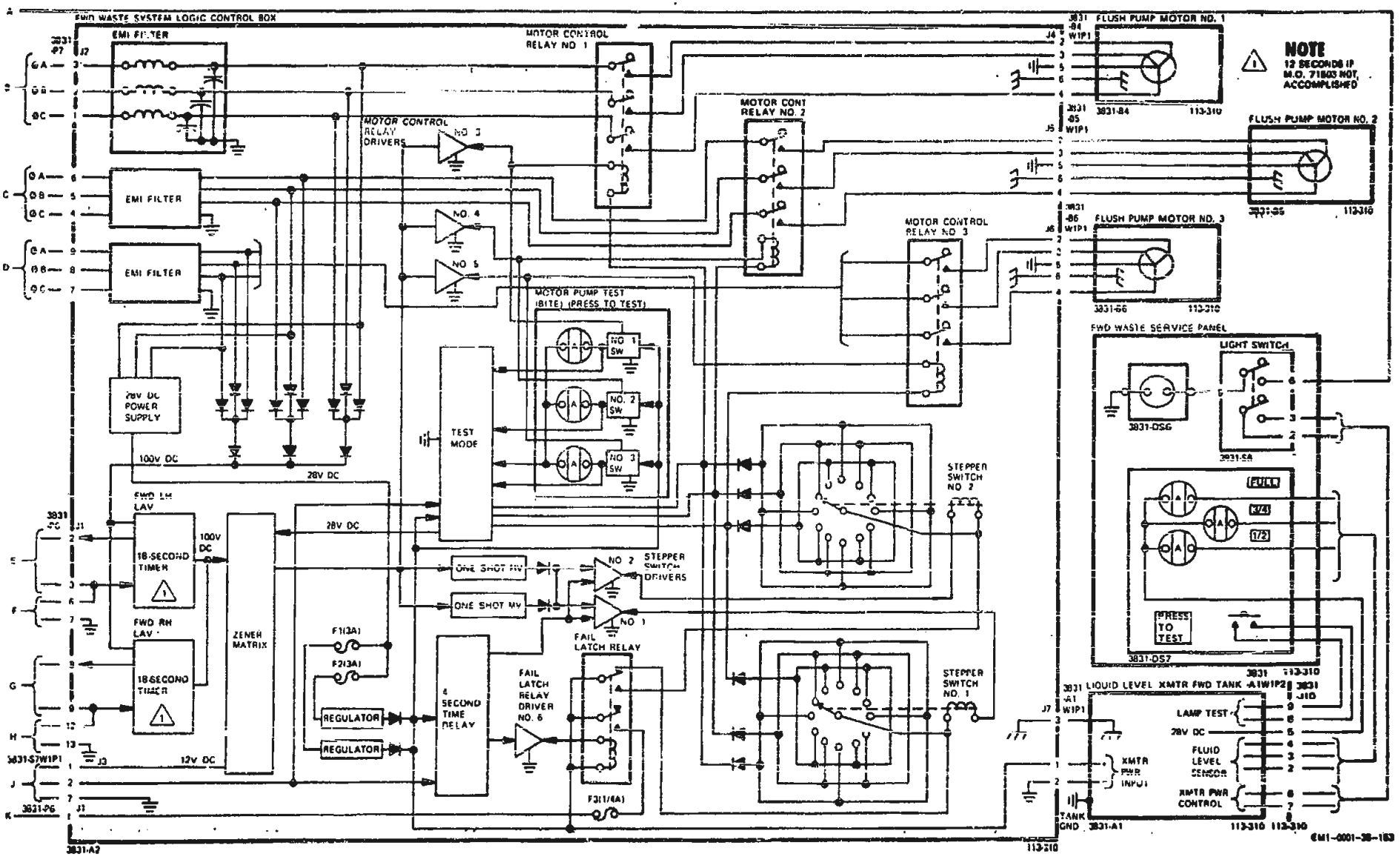
Forward Waste Disposal System Electrical Schematic
SCHEM 1 (Sheet 1)

R EFFECTIVITY: 001-006 WITH SB38-032
R OR 001-006 WITHOUT SB38-055
001B



Forward Waste Disposal System Electrical Schematic
SCHEM 1 (Sheet 1)

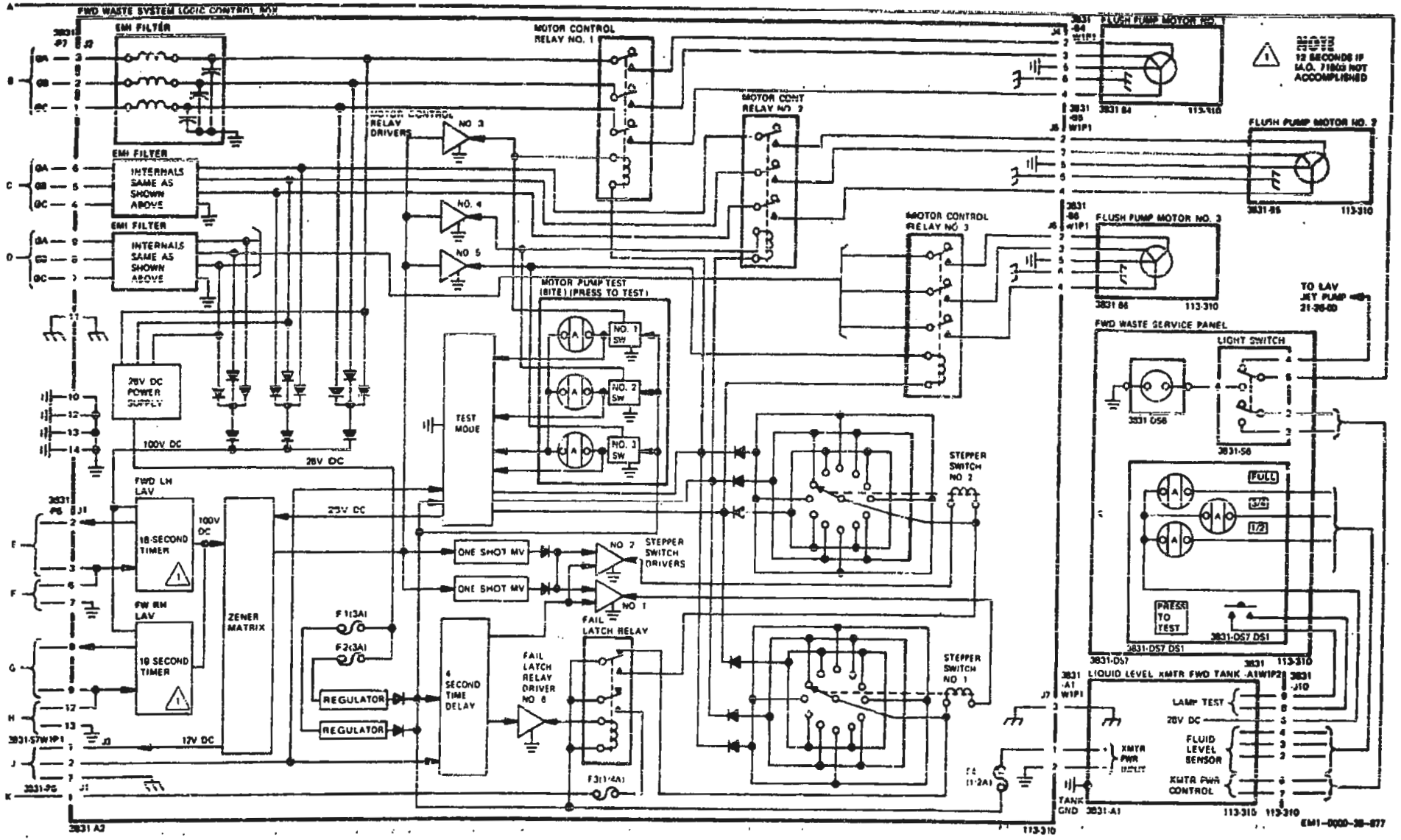
R EFFECTIVITY: 007-031 WITH SB38-032 AND 032-999/
R OR 007-999 WITHOUT SB38-055
001B



CR Forward Waste Disposal System Electrical Schematic
CR SCHEM 1 (Sheet 2)

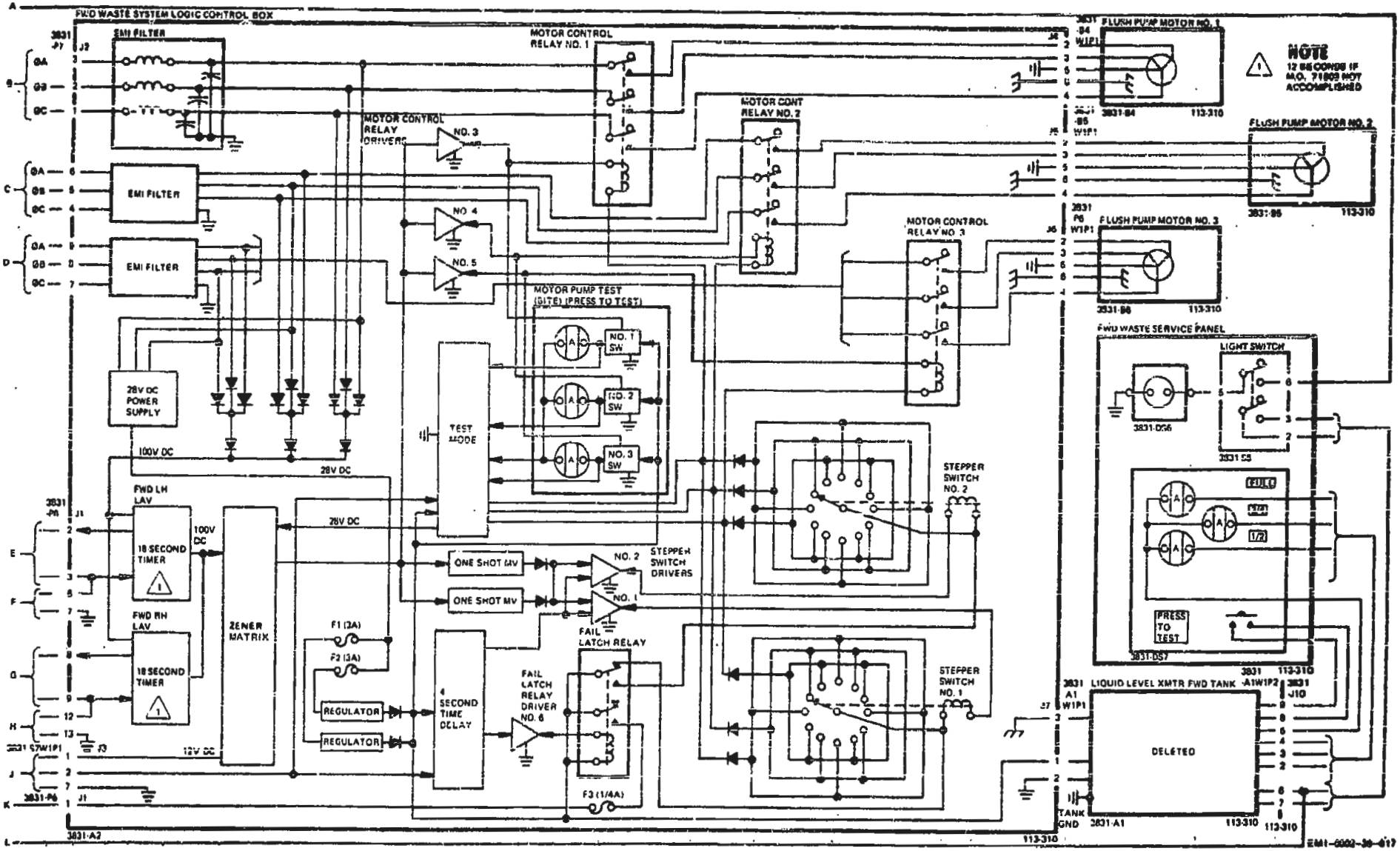
EFFECTIVITY: 001-006 WITHOUT SB38-032
OR 001-006 WITH SB38-055

0019



Forward Waste Disposal System Electrical Schematic
SCHEM 1 (Sheet 2)

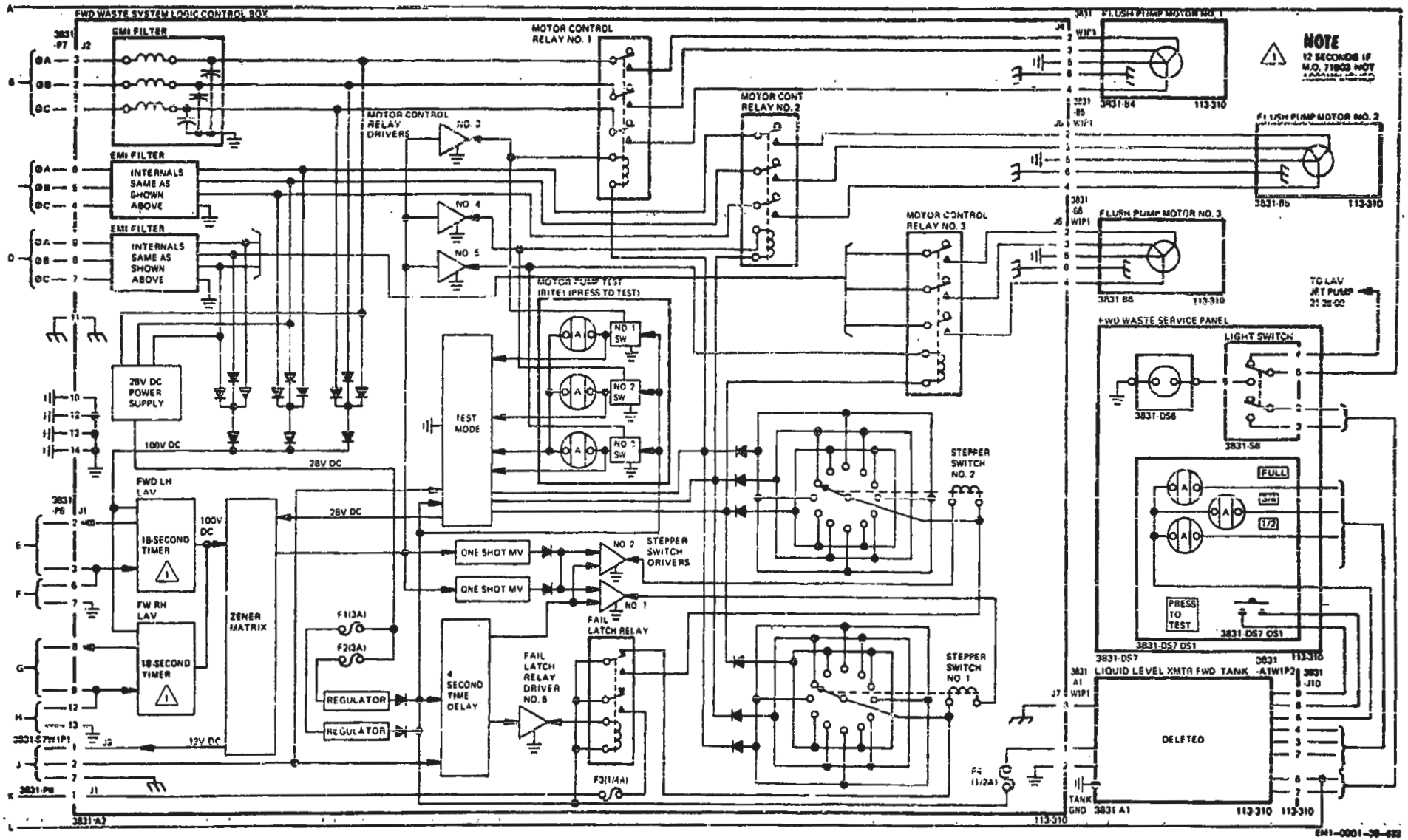
EFFECTIVITY: 007-031 WITHOUT SB38-032
OR 007-999 WITH SB38-055



CR Forward Waste Disposal System Electrical Schematic
CR SCHEM 1 (Sheet 2)

EFFECTIVITY: 001-006 WITH SB38-032/
OR 001-006 WITHOUT SB38-055

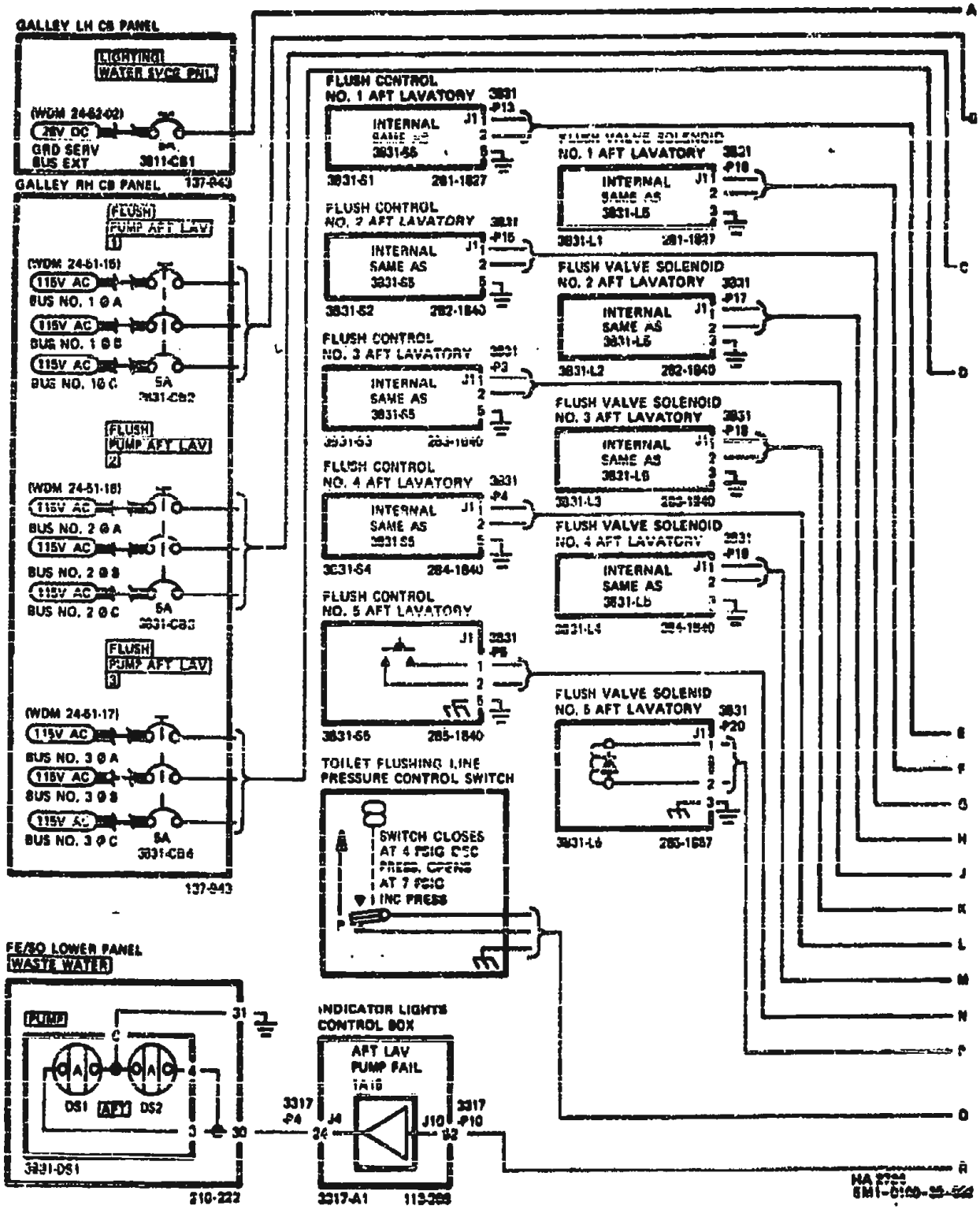
001B



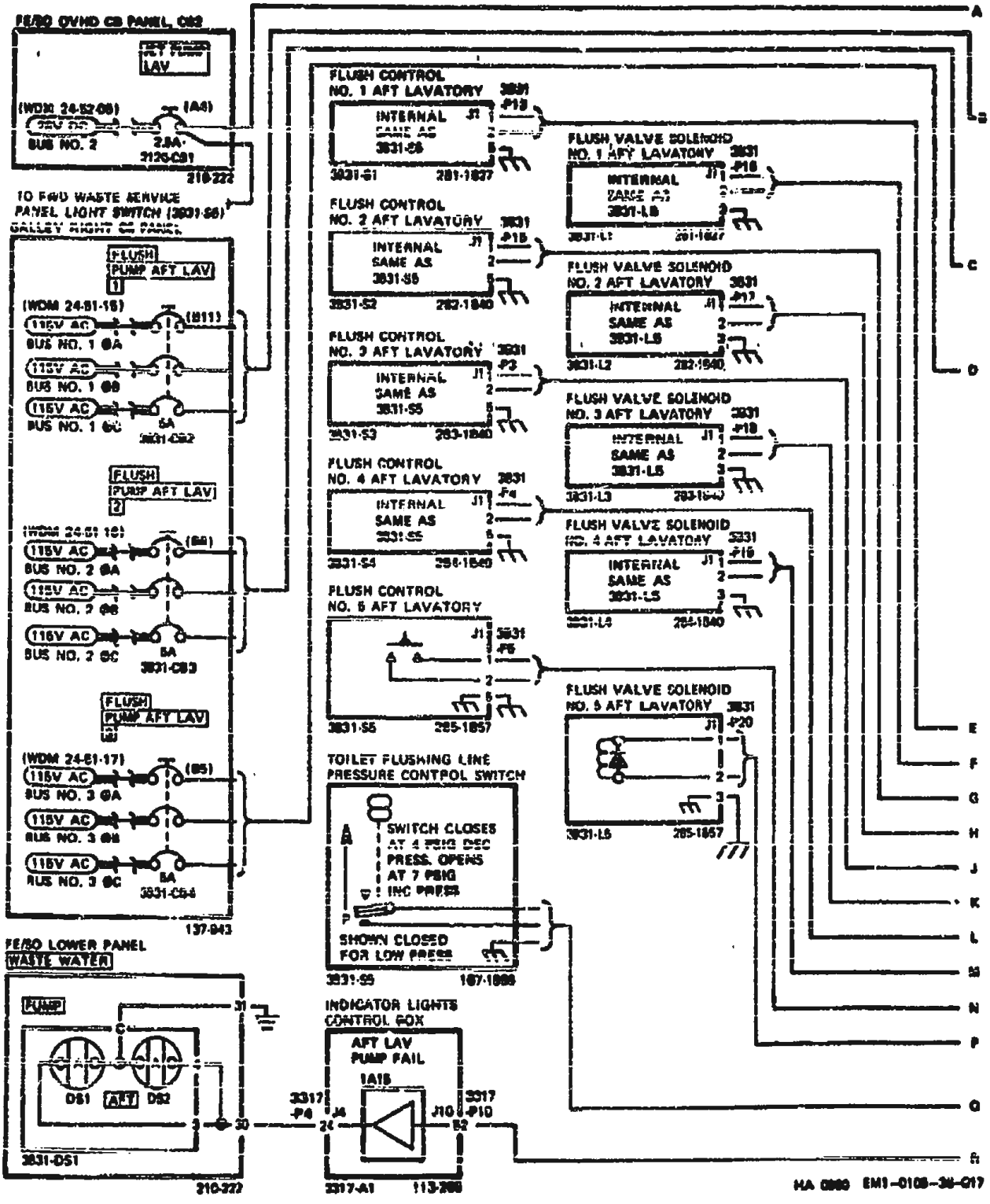
CR Forward Waste Disposal System Electrical Schematic
CR SCHEMM (Sheet 2)

EFFECTIVITY: 007-031 WITH SB38-032 AND 032-999
OR 007-999 WITHOUT SB38-055

001B

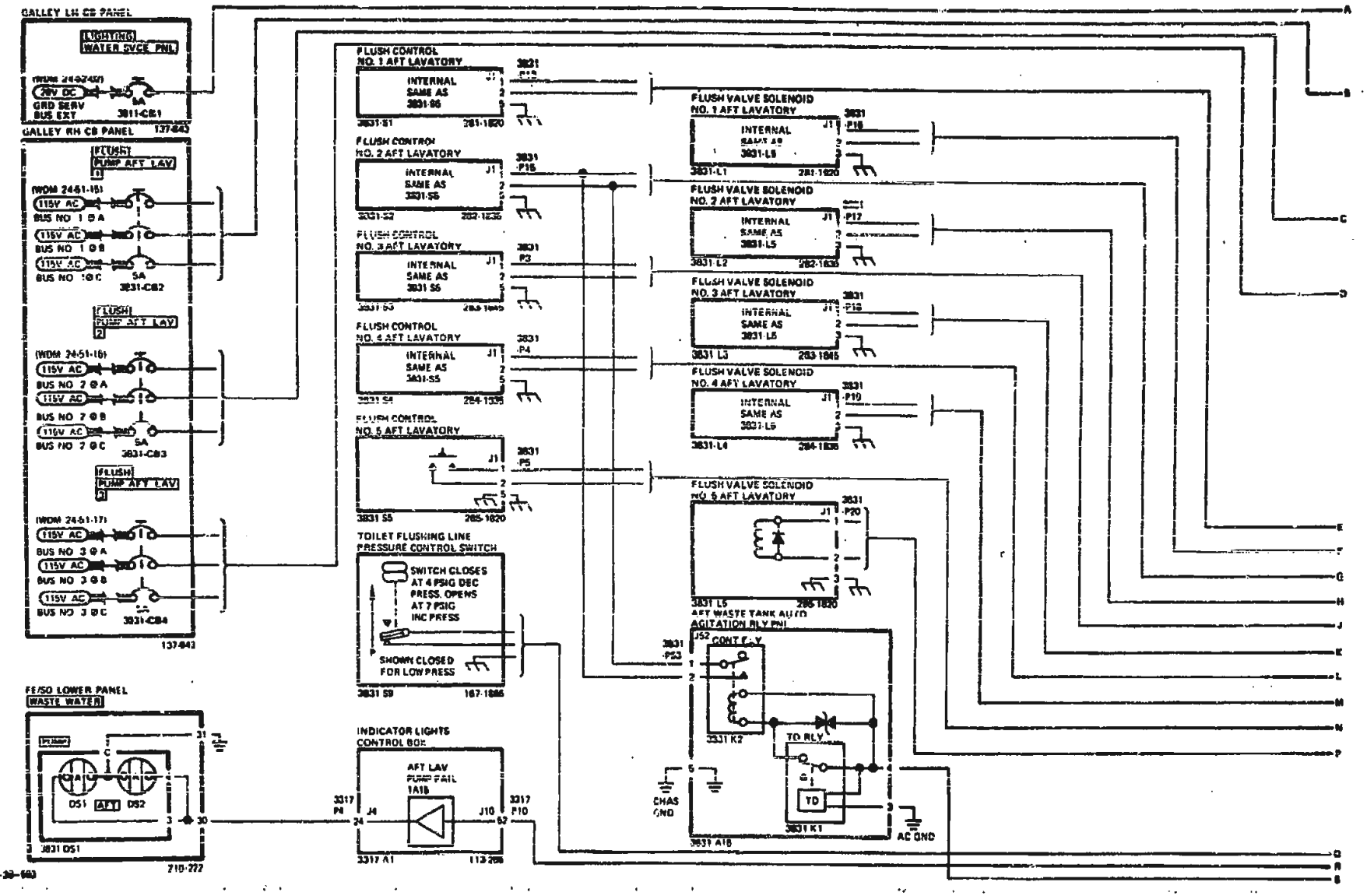


Aft Waste Disposal System Electrical Schematic
SCHEM 2 (Sheet 1)



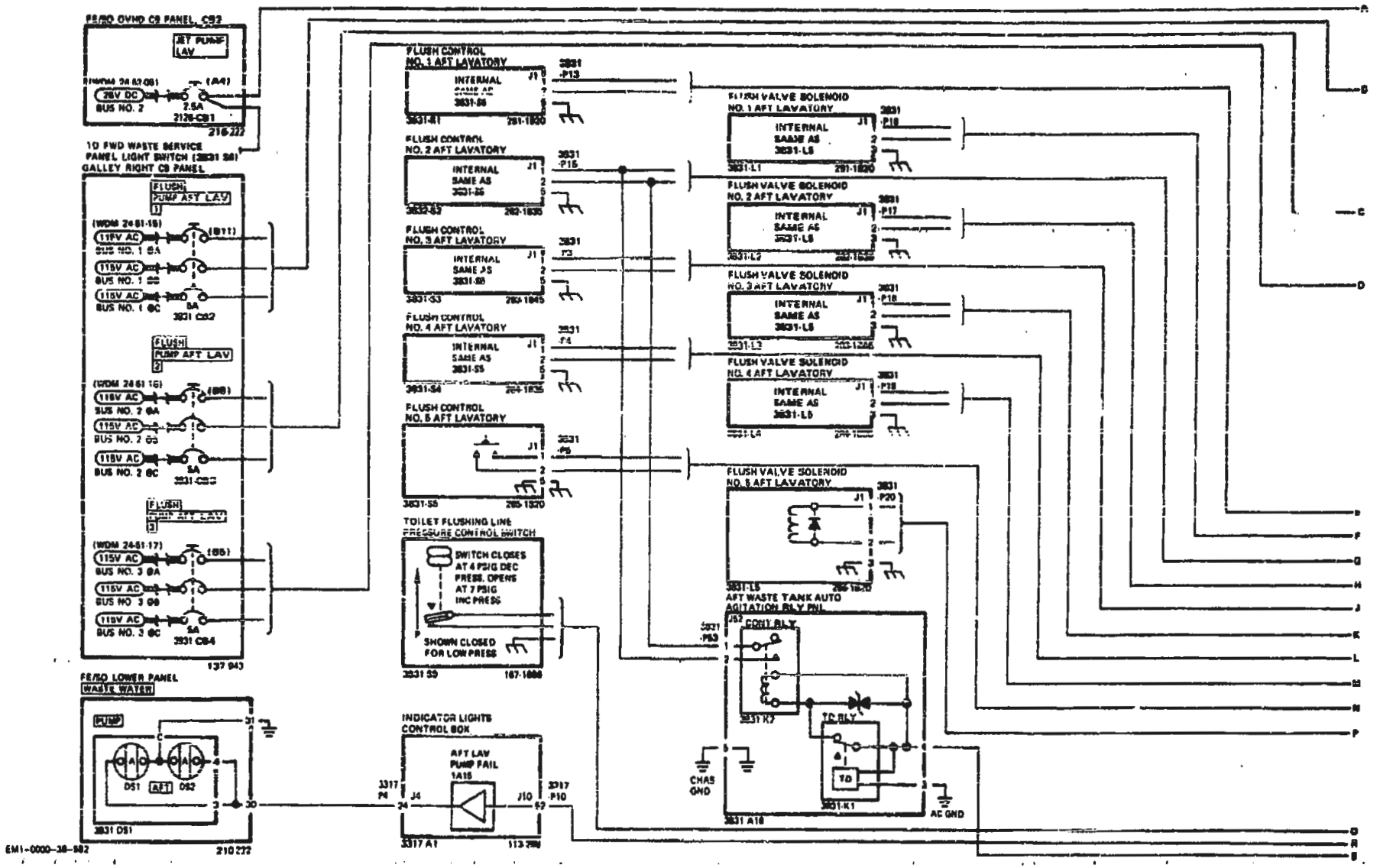
Aft Waste Disposal System Electrical Schematic
SCHEM 2 (Sheet 1)

R EFFECTIVITY: 007-031 WITHOUT SB38-032
R OR 007-999 WITH SB38-055
001B



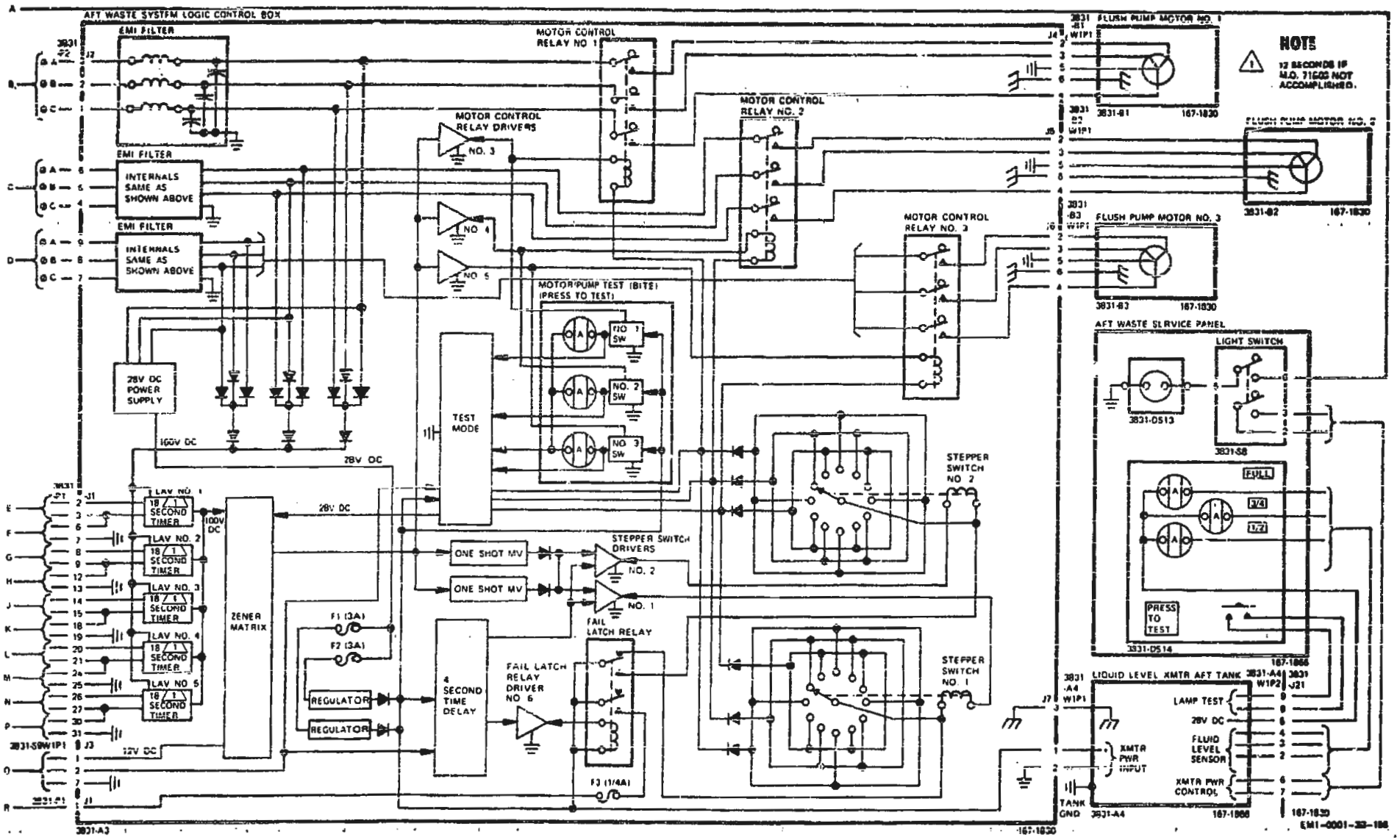
Aft Waste Disposal System Electrical Schematic
SCHEM 2 (Sheet 1)

R 22 001B EFFECTIVITY: 001-006 WITH SB38-032
OR 001-006 WITHOUT SB38-055



Aft Waste Disposal System Electrical Schematic
SCHEM 2 (Sheet 1)

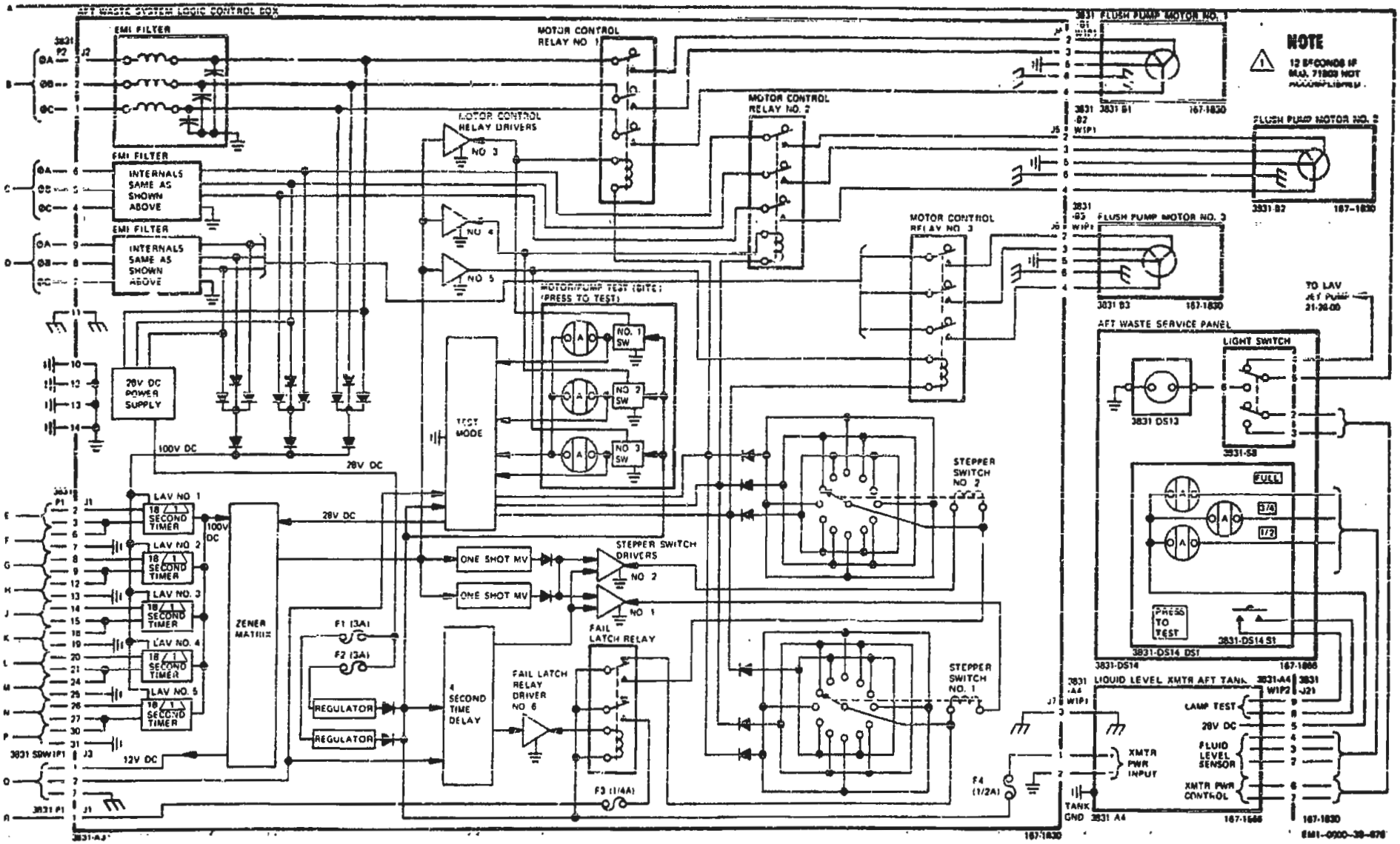
R EFFECTIVITY: 007-031 WITH SB38-032 AND 032-999/
R OR 007-999 WITHOUT SB38-055
0018



CR Aft Waste Disposal System Electrical Schematic
CR SCHEM 2 (Sheet 2)

EFFECTIVITY: 001-006 WITHOUT SB38-032/
OR 001-006 WITH SB38-055

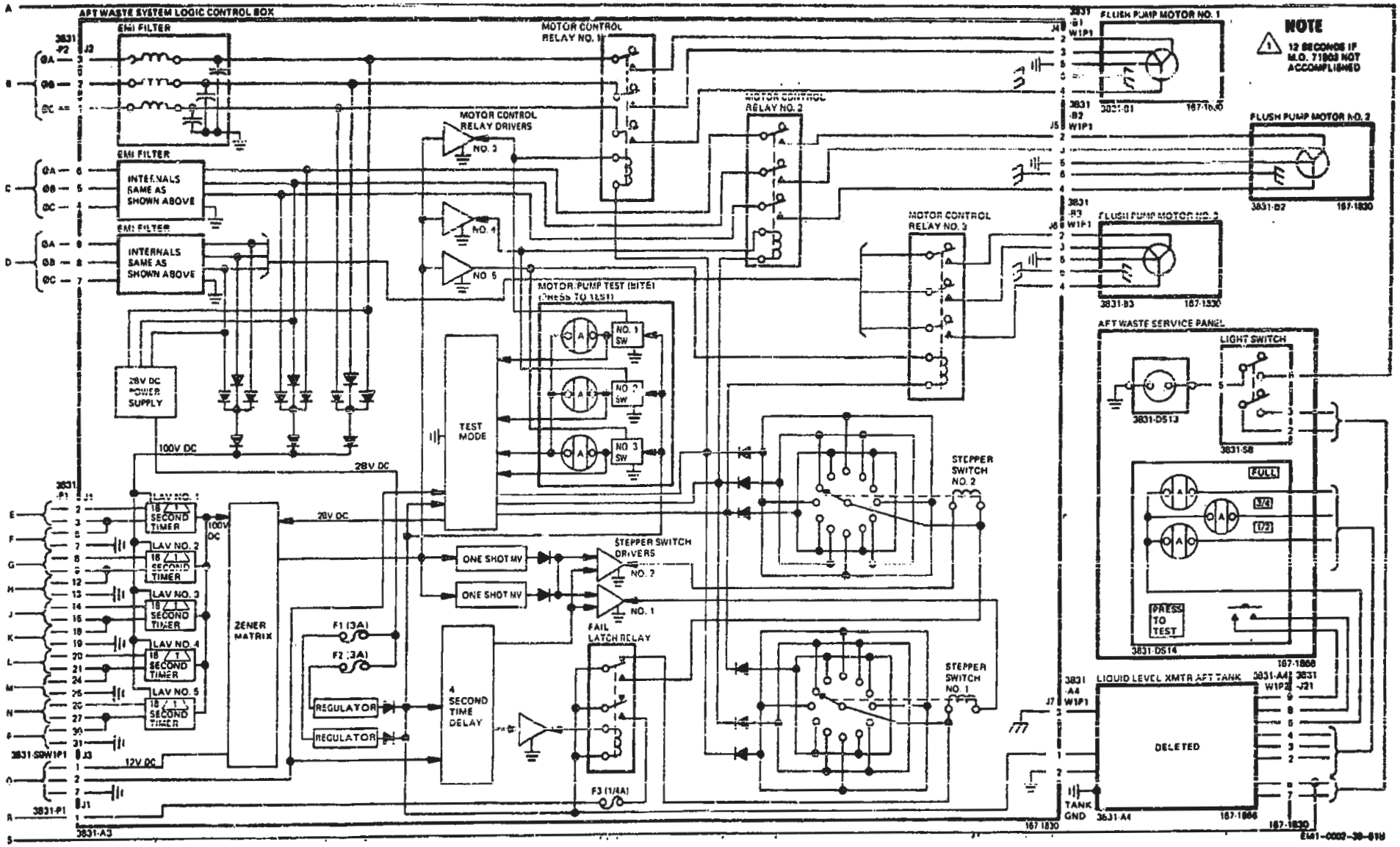
001B



CR Aft Waste Disposal System Electrical Schematic
CR SCHEM 2 (Sheet 2)

EFFECTIVITY: 007-031 WITHOUT SB38-032
OR 007-999 WITH SB38-055

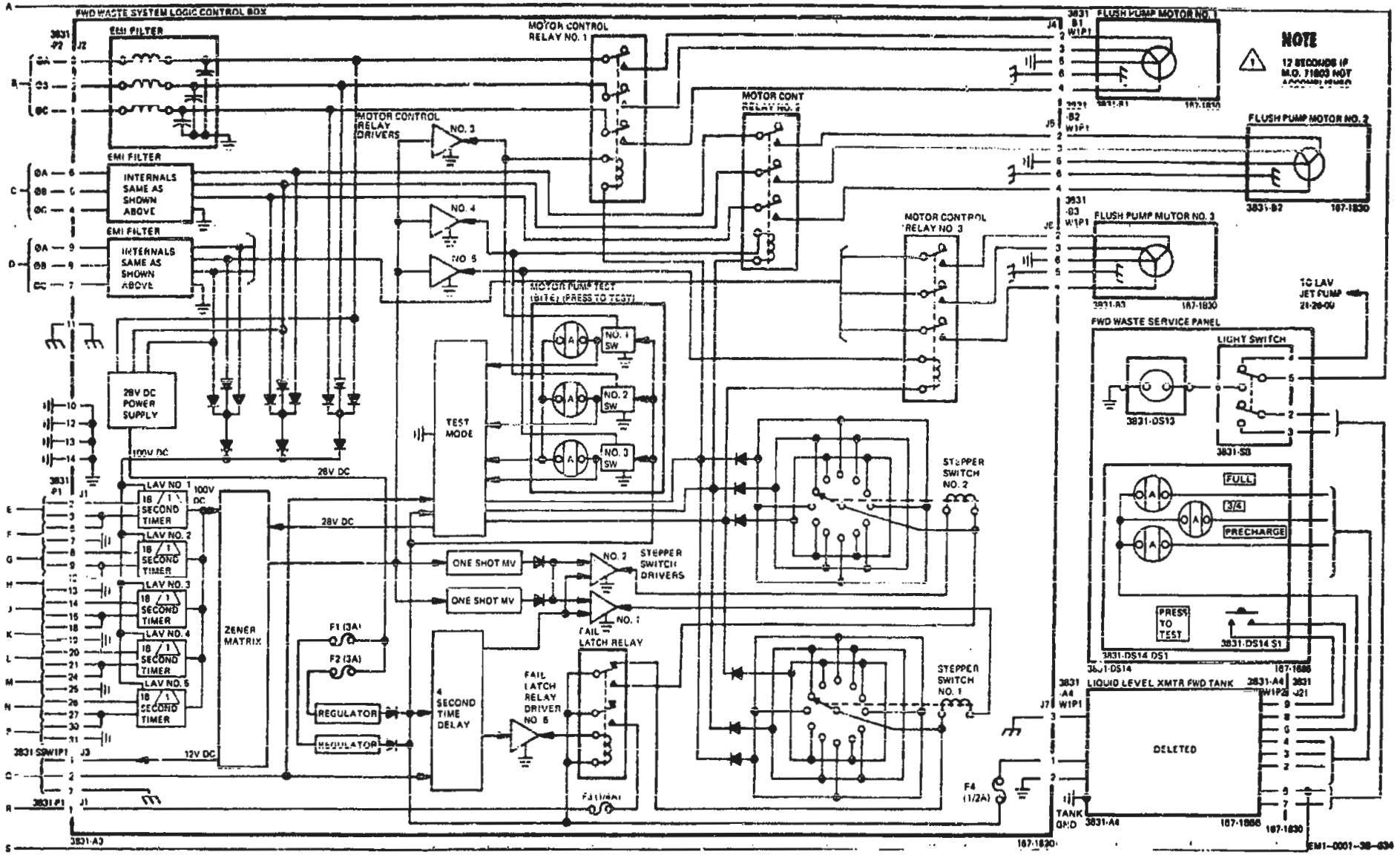
001B



CR Aft Waste Disposal System Electrical Schematic
CR SCHEM 2 (Sheet 2)

EFFECTIVITY: 001-006 WITH SB38-032/
OR 001-006 WITHOUT SB38-055

001B



CR Aft Waste Disposal System Electrical Schematic
CR SCHEM 2 (Sheet 2)

EFFECTIVITY: 007-031 WITH SB38-032 AND 032-999
OR 007-999 WITH SB38-055

0018

WASTE DISPOSAL SYSTEM - ADJUSTMENT AND TEST

1. General

This procedure is used to perform a BITE check for the forward and aft waste system logic box and a functional check for the complete waste disposal system.

2. Equipment and Materials

Lavatory System Servicing Cart and Hoses

R Test Set H-6819-TSH

Spring Scale (0-100 pounds)

Stop Watch

3. Referenced Procedures

6-40-00	Exterior Access Doors and Removable Panels - Description and Operation
6-50-00	Interior Access Doors and Removable Panels - Description and Operation
12-15-11	Waste Disposal System - Replenishing
24-41-00	External Power/Ground Service System - Maintenance Practices
38-31-01	Toilet Assembly - Removal and Installation
38-31-13	Manual 4-inch Ball Valve - Removal and Installation

4. Adjustment/Test

A. Waste System Logic Unit Light Check

(1) R On flight Engineer/Second Officers overhead circuit breaker panel CB2 verify FWD LAV FLUSH PUMP NO 1 (B3), NO 2 (B6), and NO 3 (B9) circuit breakers are closed.

R R On galley right circuit breaker panel, zone 130, verify FLUSH - PUMP AFT LAV 1 (B11), 2 (B8), and 3 (B5) circuit breakers are closed.

(2) Turn on electrical power (Ref. 24-41-00).

(3) Disconnect PRESSURE SWITCH (J3) connector at forward or aft waste system logic unit, zone 113 or zone 167.

(4) Alternately depress MOTOR PUMP TEST 1, 2, and 3 test buttons on forward or aft waste system logic unit. Verify corresponding 1, 2, or 3 light comes on after button is depressed. Verify FWD or aft fault light on Flight Engineer/Second Officers WASTE WATER panel does not come on.

(5) Connect PRESSURE SWITCH, disconnected in Step 4A(3).

(6) Refer to Step 4A(1), open one circuit breaker and perform procedure described in Step 4A(7). Repeat step for each circuit breaker. Close each breaker and reset FE/SO WASTE WATER fault light when step is complete.

(7) Depress appropriate MOTOR PUMP TEST 1, 2, or 3 test button on waste system logic box. Verify following:

(a) Corresponding 1, 2, or 3 light DOES NOT come on.

(b) Fault light on FE/SO WASTE WATER panel comes on.

B. Waste System Logic Unit BITE Test

(1) Verify pressure switch is connected in Step 4A(5).

(2) Close circuit breakers opened in Step 4A(6).

(3) Alternately depress MOTOR PUMP TEST 1, 2, and 3 test buttons on waste system logic unit. Verify corresponding 1, 2, or 3 light comes on within 4 seconds after button is depressed.

The light coming on within 4 sec. indicates pump is operating correctly, and pressure switch has actuated to the open contact position.

NOTE: A light-on condition may also be achieved with a bad pressure switch closed contact simulating an open contact. If this condition is encountered, disconnect one pump from logic box and BITE test that pump again. Lack of pressure buildup should prevent BITE test light from coming on. If light does come on, this indicates a problem in pressure switch circuit.

If the light does not come on within 4 sec and "Waste System Logic Unit Light Check" above was normal, the

pump is not pressurizing the manifold with liquid or the pressure switch is failed in the closed-contact position. Check for fluid flow at the lavatory bowls. If fluid flow at bowl is adequate, the pressure switch may be inoperative.

If light does not come on within 4 sec for any of the three pumps and little or no flow is observed at lavatory bowl (and the tank has been properly serviced and precharged). The tank internal flush fluid plumbing may have a rupture, causing fluid to flow back into the tank. Open tank to check (remove pump or unused port).

R For a light-on condition for all three pumps and low flow at one or more lavatory bowls the solenoid valve at the lavatory bowl may be inoperative.

C. Forward and Aft Waste Disposal System Functional Check.

(1) Service and precharge applicable waste tank (Ref. 12-15-11).

NOTE: This procedure is identical for either the forward or aft waste disposal systems except for circuit breaker locations.

(2) Verify circuit breakers are closed in Step 4A(1).

(3) Turn on electrical power (Ref. 24-41-00).

R (4) In forward electronic service center (FESC), zone 113,
R gain access through top of forward tank shroud.

In aft cargo compartment, zone 167, remove aft bulkhead center panel (161AL).

(5) Open forward waste system service panel (113AB)(Ref. 6-40-00).

Open aft waste system service panel 167AB (Ref. 6-50-00).

(6) Turn on panel service light.

(7) Depress PRESS TO TEST button. Verify tank quantity lights come on.

(8) Unlatch and open drain port cap at ground service panel. Connect lavatory service cart hose to DRAIN NIPPLE.

(9) Attach spring scale to drain ball valve handle. Operate valve and verify operating torque does not exceed 60 pound-inch. Verify torque required to move handle out of detent from either closed or open position does not exceed 63 - 67 pound-inch.

NOTE: To convert pound to pound-inch, measure distance from handle pivot to pulling point and multiply distance in inches and pounds.

(10) Verify ball drain valve opens to its fully open position, if ball valve does not open fully, adjust ball valve control rod (Ref. 38-31-13).

(11) Allow waste tank to drain completely, then close ball drain valve.

(12) Connect lavatory service cart fill hose to FLUSH & PRECHARGE NIPPLE.

(13) Precharge applicable waste tank (Ref. 12-15-11).

(14) Inspect waste tank fill and drain lines for evidence of leakage.

(15) Remove applicable toilet shroud (Ref. 38-31-01).

(16) Individually operate each toilet flushing control switch. Check each toilet bowl for water flow and
CR swirl pattern. Verify flushing time is 17 - 19
CR seconds. Check each toilet assembly for any leaks.

(17) Cycle each system, adding one additional toilet to flushing water demand on each cycle until all toilets are flushed simultaneously. Verify each flushing cycle is powered in sequence by a different one of three motor-pump-filter units. Note which of the three units was the last to operate.

(18) Disconnect electrical connector of the next motor-pump-filter unit to operate in the flushing sequence.

(19) Flush a toilet; verify applicable FWD or AFT pump fault light on Flight Engineer/Second Officers WASTE WATER panel comes on. Repeat toilet flush and verify light stays on.

(20) Reconnect wire harness disconnected in Step 4B(18).

(21) Open and then close applicable forward or aft LAV pump circuit breakers listed in Step 4A(1).

(22) Flush a toilet at least two times. Verify WASTE WATER panel fault light is out.

(23) Fill waste tank with fresh fluid until approximately 3/4 full. Verify that 3/4 full light comes on.

(24) Open ball drain valve and drain tank. When tank is empty, close the valve. Close and latch the drain port cap.

(25) Precharge waste tank with prescribed chemically treated solution (Ref. 12-15-11).

(26) Remove drain and precharge hoses.

(27) Place service panel switch light to off position and close service panel door.

(28) Turn off electrical power (Ref. 24-41-00).

(29) Reinstall toilet shrouds removed in Step 4B(15)(Ref. 38-31-01).

R (30) Reinstall forward waste tank shroud top.

(31) Reinstall aft cargo compartment, zone 167, aft bulkhead center panel (161AL).

D. Forward and Aft Waste Disposal System Functional Test (Electrical).

(1) Gain access to waste system service panel forward (zone 113) and aft (zone 167).

(2) Open circuit breakers in Step 4A(1).

(3) Connect lavatory system servicing cart.

(4) Disconnect waste system control logic unit.

(5) Install Test Set (H-6819-TSH) in place of waste system control logic unit. Place S1 switch to off position.

(6) Precharge waste tank (Ref. 12-15-11).

(7) Close circuit breaker in Step 4A(1).

(8) Place switch S1 on, test set box (H-6819-TSH), to No. 2 position.

NOTE: On aircraft with SB38-055, the auto agitation system has been removed from the

R aircraft. Steps (9) through (12) are not applicable to
R those aircraft not incorporating SB38-032 or aircraft
R incorporating SB38-055.

R (9) On aircraft 001-031 with SB38-032 and 032-999,
R install agitator test box (H-6819-TSH-0701) between system connector and agitation relay bracket.

R (10) On aircraft 001-031 with SB38-032 and 032-999,
R place S1 switch, on agitator test box, to on position (momentarily). Verify toilet flushes.

R (11) On aircraft 001-031 with SB38-032 and 032-999,
R close service light switch on waste system service panel. Verify DS1 light, on agitator test box, comes on for approximately five seconds.

R (12) On aircraft 001-031 with SB38-032 and 032-999,
R remove agitator test box, and reconnect agitation relay bracket.

(13) Place switch S1 and S2, on test set box, to position No. 1. Verify phase rotation light (DS1) comes on.

(14) Operate flush handle in lavatory, and determine toilet flushes. Verify fault light (DS2), on test set box, goes off.

(15) Place switch S1, on test set box, to position No. 2 and repeat Step 4D(13).

(16) Place switch S1, on test set box, to position No. 3 and repeat Step 4D(13).

(17) Repeat Steps 4D(13) through 4D(16) for next lavatory. Change position of switch S2, in sequence, for different lavatory.

(18) Place switch S1 to off position.

(19) Open circuit breakers in 4A(1).

(20) Remove Test Set and reconnect waste system control logic box.

(21) Close circuit breakers in Step 4A(1) and disconnect lavatory system service cart.

CR

WASTE DISPOSAL SYSTEM - CLEANING AND PAINTING

CR 1. General

CR The following provides a procedure for cleaning scale and other
CR bacteria producing matter from the lavatory waste tanks.

CR 2. Equipment and Materials

CR 100 Grain Vinegar, TWA Stk Nbr 50-1898

CR Cleaner 140B, TWA Stk Nbr 50-1301

CR 3. Referenced Procedures

CR 12-15-11 Waste Disposal System Servicing

CR 4. Maintenance Practices

CR A. Service and flush out each lavatory waste holding tank; do
CR not add precharge. Assure drain valve is closed after
CR servicing (Ref. 12-15-11, 301).

CR B. Fill each lavatory waste holding tank with 100 Grain
CR Vinegar:

CR Forward Waste Tank - 40 gallons

CR Aft Waste Tank - 80 gallons

CR NOTE: Waste tanks may be filled through the toilet bowl
CR directly from the 55 gallon vinegar stowage container
CR using a barrel pump; other filling methods compatible
CR with local maintenance facilities may also be used.

CR C. Flush each toilet two to three times each hour until the
CR vinegar is drained.

CR D. Check waste tanks and ducts for any leakage after filling
CR and initial toilet flushing; repair as required.

CR E. Clean up any spillage immediately with fresh water and
CR Cleaner 140B.

CR F. After twelve to twenty hours of cleaning with vinegar, drain
CR and flush system, and add appropriate precharge (Ref.
CR 12-15-11, 301).

CR
CR

NOTE: Vinegar may be left in tanks for several days with no harmful effect to the lavatory system.

TOILET ASSEMBLY - REMOVAL AND INSTALLATION

1. General

Drain and flush lines from cabin floor to waste tank assembly for forward lavatory are covered with a shroud to protect electronic equipment from corrosive liquids.

2. Equipment and Materials

O-rings

Grease, MIL-G-4343, or equivalent

3. Removal/Installation

A. Removal

(1) Gain access to underfloor fittings for forward lavatory toilet assemblies through access door 112AB.

Gain access to underfloor fittings for aft lavatory toilet assemblies through aft cargo compartment by removing left, center, and right aft bulkhead panels, FS1792, for access to zone 167.

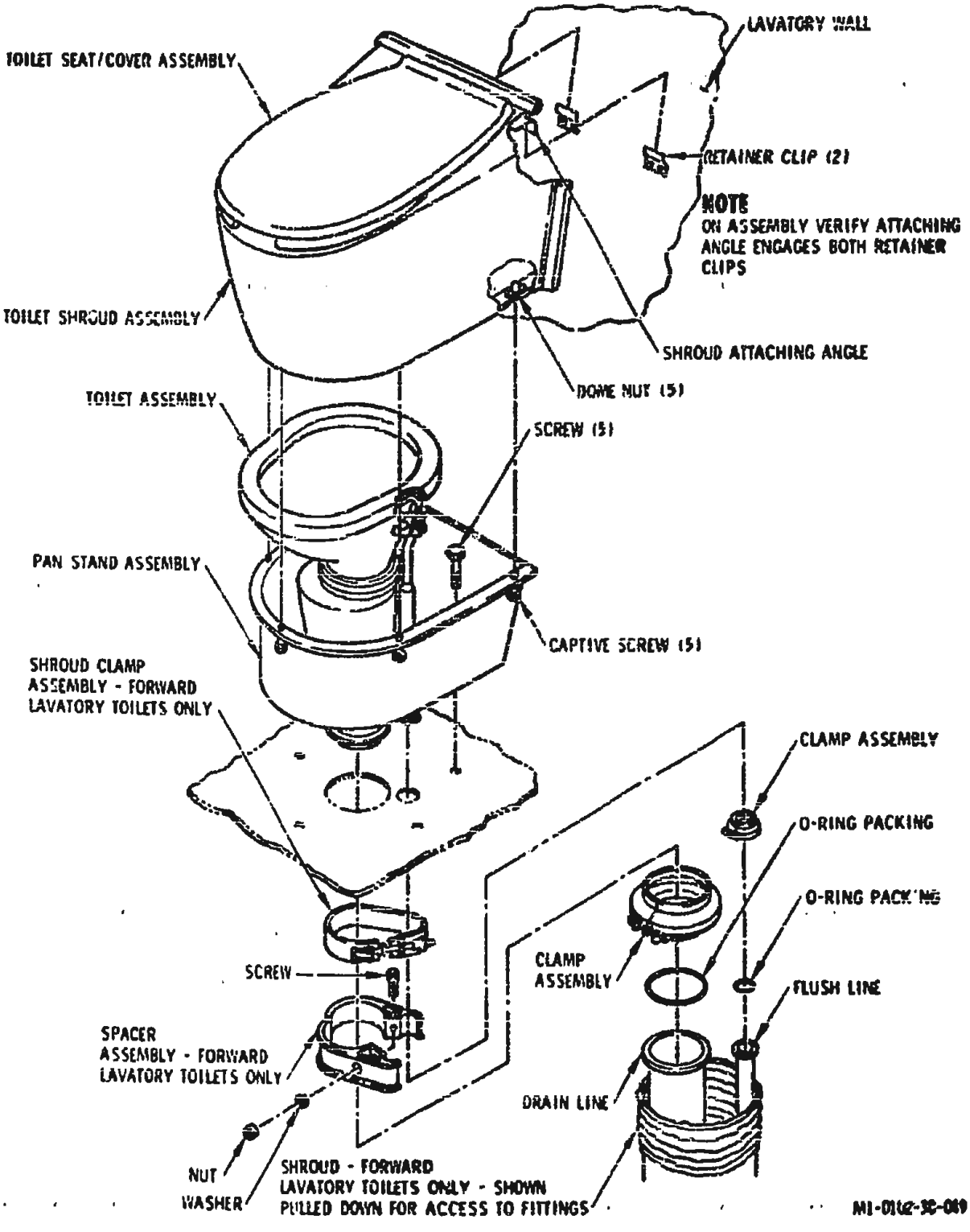
(2) On Flight Engineer/Second Officers overhead ciruit breaker panel CB2, zone 215, open and tag circuit
R breakers FWD LAV FLUSH PUMP NO. 1 (B3), NO. 2(B6) and
R NO. 3(B9) for removal of forward lavatory toilet assemblies.

On galley right circuit breaker panel, zone 130, open
R and tag circuit breakers FLUSH PUMP AFT LAV 1 (B11),
R FLUSH PUMP AFT LAV 2(B8), and FLUSH PUMP AFT LAV 3(B5) for removal of aft lavatory toilet assemblies.

(3) In lavatory, loosen captive screws in pan stand
R assembly and remove toilet shroud and toilet seat/cover as a unit by lifting up to release from clip mounted on the wall panel (Ref. Fig. 401).

(4) Remove screws holding drip pan to structure.

(5) In underfloor area indicated in Step 3A(1), forward lavatories, remove shroud clamp assembly. Shift shroud loosely downward to expose spacer assembly, drain line clamp assembly, and flush line assembly.



R
R Toilet Assembly – Removal and Installation
Figure 401

EFFECTIVITY: ALL

0018

R R (6) Remove spacer assembly and clamp assemblies (on forward lavatory toilet assembly only).

R R (7) Disconnect flush line and drain line by removing clamp. Discard '0' ring.

R (8) In lavatory, remove toilet assembly.

B. Installation

(1) Verify that circuit breakers opened in Step 3A(2) are open and tagged.

(2) Install toilet assembly in lavatory, resting drain line and flush line components of toilet assembly on aircraft drain line and flush line below floor.

(3) In underfloor area indicated in Step 3A(1), clamp drain lines and flush lines together with clamp assemblies using new O-rings coated lightly with grease.

R R (4) Install spacer assembly (for forward lavatory toilet assembly).

(5) Pull shroud up around drain and flush lines, over clamp assemblies, and over spacer assembly, to touch underfloor surface, forward lavatories.

CAUTION: ENSURE THAT CLAMP ASSEMBLY THAT SECURES THE SHROUD BETWEEN THE CLAMP AND SPACER ASSEMBLIES IS PROPERLY SEATED BETWEEN THE FLANGES ON THE SPACER ASSEMBLY.

(6) Install shroud clamp assembly over shroud and spacer assembly.

(7) Install screws through drip pan to secure drip pan to structure just below lavatory floor.

R R R (8) Install toilet assembly shroud, including toilet seat/cover over toilet assembly and position on pan stand assembly. Ensure that shroud clips engage clips on lavatory panel. Secure toilet shroud assembly by tightening captive screws in pan stand assembly.

(9) Remove tags and close circuit breakers opened in Step 3A(2).

TOILET FLUSHING VALVE - REMOVAL AND INSTALLATION

1. Equipment and Materials

   O-rings

R Grease, MIL-G-4343, or equivalent

2. Removal/Installation

   A. Removal

R C CR C C (1) On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1, (B3) NO. 2, (B6) and NO. 3 (B9) for removal of forward lavatory toilet flushing valves. On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1 (B11), FLUSH PUMP AFT LAV 2 (B8) and FLUSH PUMP AFT LAV 3 (B5) for removal of aft lavatory toilet flushing valves.

   (2) In lavatory, remove shroud, including seat and cover, from around toilet assembly by loosening captive screws. Pull shroud upward to remove and disengage attachment clips on wall panel (Ref. Fig. 401).

   (3) Disconnect electrical connection from toilet flushing valve.

   (4) Remove or loosen clamp assembly below toilet bowl and lift bowl upward, carefully disengaging flushing valve port from flushing line. Discard O-rings.

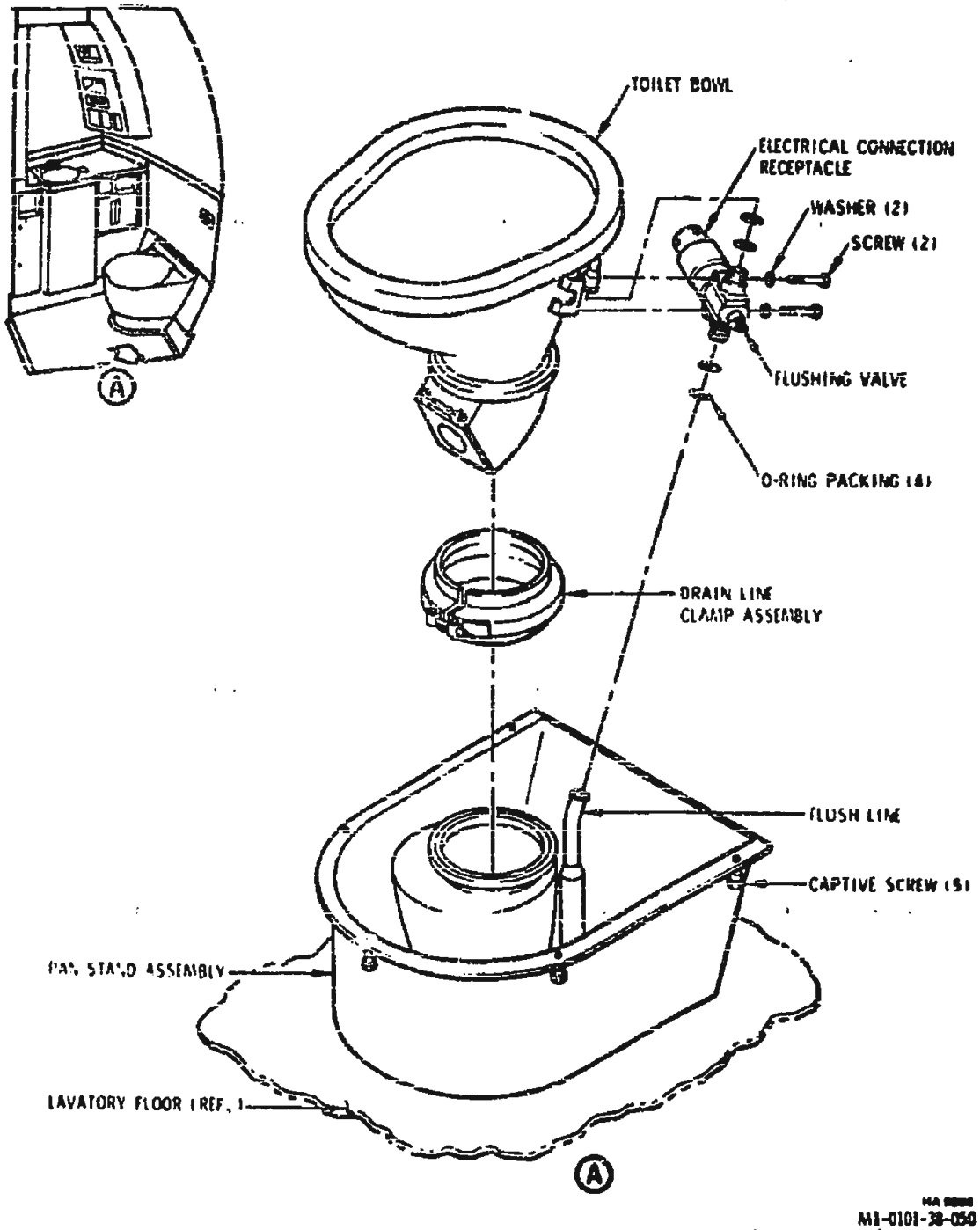
   (5) Remove flushing valve from toilet bowl by removing screws and washers.

   B. Installation

   (1) Verify circuit breakers opened in Step 2A(1) are open and tagged.

   CAUTION: DO NOT DAMAGE O-RINGS.

   (2) With flushing valve electrical connection pointing to rear of bowl, install valve upper port in toilet bowl flushing tube with new O-rings lightly coated with grease. Secure valve with screws and washers (Ref. Fig. 401).



R Toilet Flushing Valve - Removal and Installation
R Figure 401

CAUTION: ENSURE THAT SEAL RING WITH NOTCHES IS IN THE LOWER POSITION, AND SEAL RING WITH BOSSES IS IN THE UPPER POSITION WITH BOSSES POINTING UPWARD. REPLACE SEAL RINGS IF DAMAGED.

(3) With seal rings and clamp assembly in place on drip pan receptacle, lower toilet bowl into place. Guide lower port of flushing valve together with new O-rings lightly coated with grease into lower flushing line.

(4) Verify toilet bowl, with clamp assembly and seal rings, is properly seated. Tighten clamp assembly.

(5) Reconnect electrical connection to flushing valve.

(6) Remove tags and close applicable circuit breakers opened in Step 2A(1).

(7) Flush applicable toilet three times to check valve and pump operation.

C NOTE: A slight amount of leakage (approx 3 oz/min) is
C permissible from the flush valve when other
C lavatories are flushed.

(8) Reinstall toilet assembly shroud, including seat and cover over toilet assembly on drip pan with screws. Ensure that shroud clips engage clips on wall panel.

TOILET FLUSHING VALVE - ADJUSTMENT AND TEST

1. General

The flow rate of water admitted to the toilet bowl during the flushing cycle is controlled by the solenoid operated toilet flushing valve. The method used to adjust the valve for desired water flow and level in the bowl is included in the following procedure.

2. Equipment and Materials

Lock-wire, Fed. Spec. QQ-W-390, 0.032-inch diameter, or equivalent

3. Referenced Procedure

38-31-02 Toilet Flushing Valve - Removal and Installation

4. Adjustment/Test

A. Toilet Flushing Valve

R (1) Gain access to toilet flushing valve by removing shroud
R from toilet assembly (Ref. 38-31-02).

(2) Remove lock-wire from adjusting screw (Ref. Fig. 501).

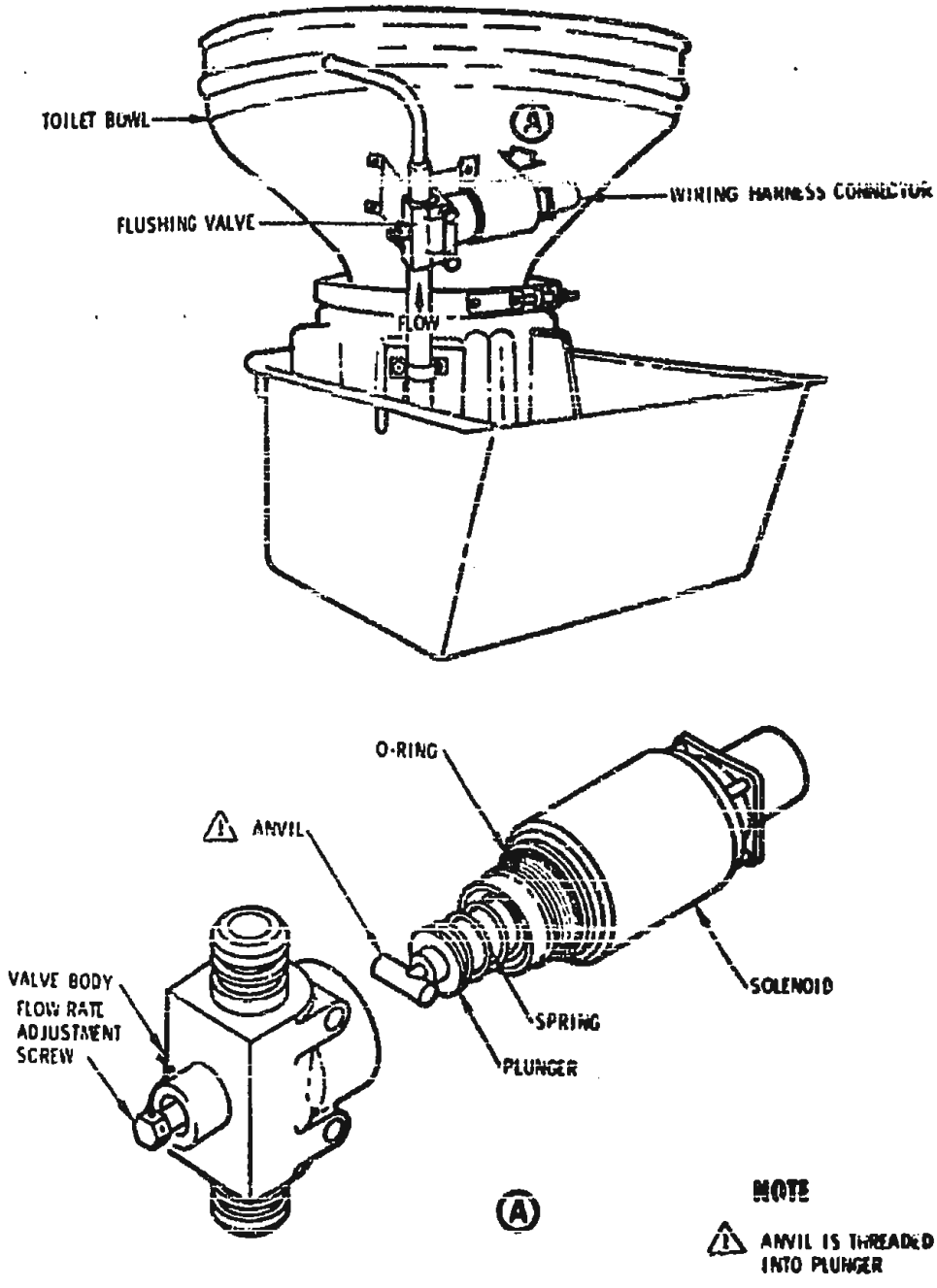
R (3) Flush toilet and observe flow pattern. Adjust valve by
R rotating hex head adjustment screw clockwise to reduce water flow and counterclockwise to increase flow.

(a) Adjust until entire bowl surface and area under upper flange is washed by flushing fluid. No
R fluid should contact shroud flange.

R (4) Flush toilet three times, observe flow level and swirl
R pattern is consistent (this tests flushing action from each motor/pump/filter unit in waste tank).

(5) Install lock-wire between valve body and hex head adjustment screw.

(6) Reinstall toilet shroud and seat assemblies(Ref. 38-31-02).



R
R Toilet Flushing Valve Adjustment
Figure 501

R
R
K
001B EFFECTIVITY: 001-015 ONLY

TOILET FLUSHING CONTROL SWITCH - REMOVAL AND INSTALLATION

R 1. General

R The toilet flushing control switch and handle are located in a
R wall recess behind each lavatory toilet.

R 2. Equipment and Materials

Protective caps

R 3. Removal/Installation

A. Removal of Forward Flushing Control Switch

(1) On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1(B3), NO. 2(B6) and NO. 3(B9) for removal of forward lavatory toilet flushing control switches.

On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1(B11), FLUSH PUMP AFT LAV 2(B8), and FLUSH PUMP AFT LAV 3(B5), for removal of aft lavatory toilet flushing control switches.

(2) Remove screws and pull toilet flushing control switch from wall recess (Ref. Fig. 401).

(3) Disconnect power and ground connections from flushing control switch and secure to structure.

(4) Remove toilet flushing control switch.

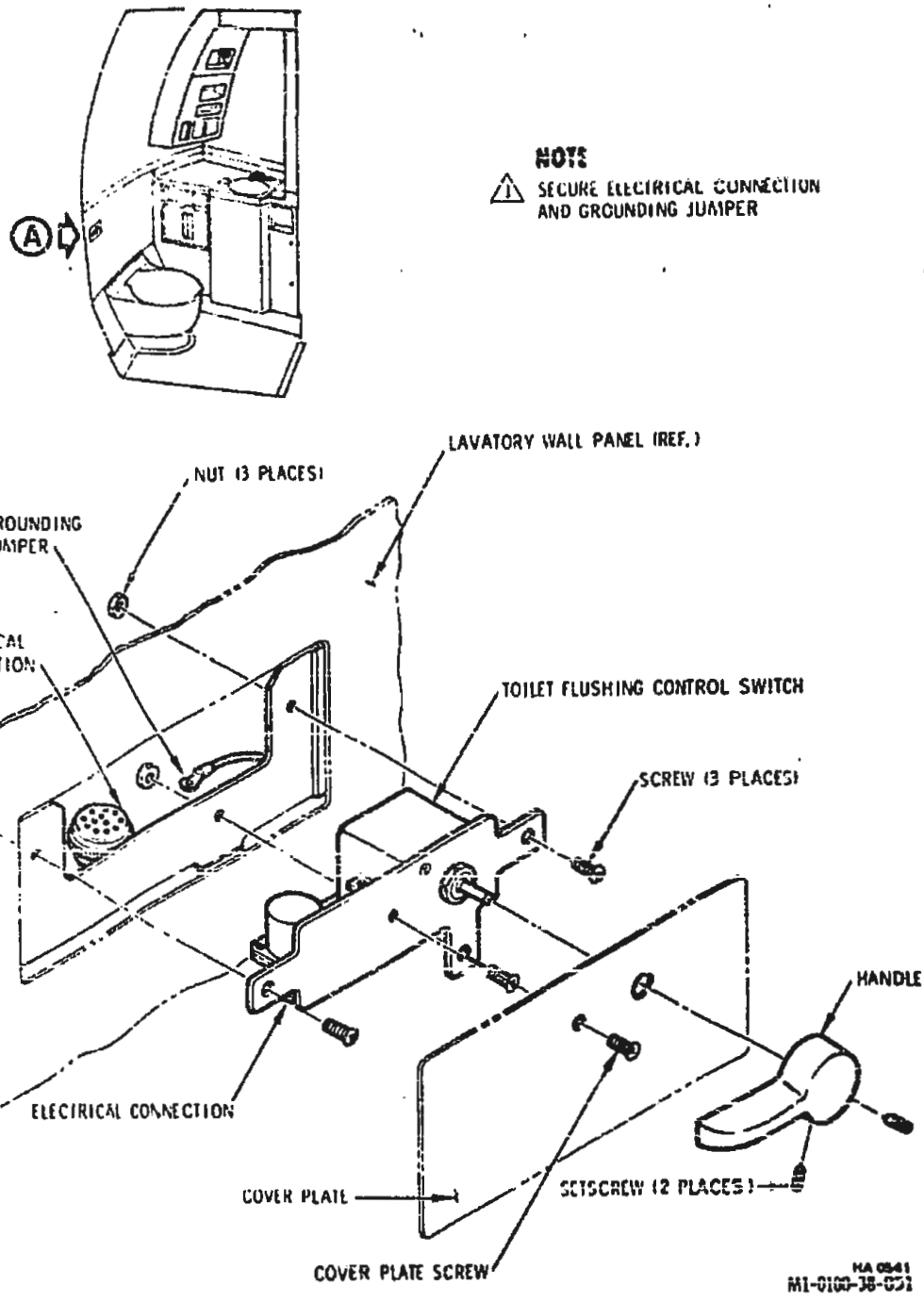
(5) Cap electrical connection on toilet flushing control switch and electrical connection from power source.

B. Installation

R (1) Verify circuit breakers opened in Step 3A(1) are open and tagged.

(2) Remove caps from electrical connections.

R (3) Remove securing ties from jumper and power source
R connector and connect power source to flushing control
R switch.



R R Toilet Flushing Control Switch - Removal and Installation
Figure 401

R R EFFECTIVITY: ALL

(4) Install flushing control switch and tighten screws.

(5) Remove tags and close circuit breakers opened in Step 3A(1). R

AFT WASTE TANK ASSEMBLY - REMOVAL AND INSTALLATION

1. Equipment and Materials

Caps and Covers

Silicone Grease, PN DC33, Dow Corning, or equivalent

R O-rings

2. Referenced Procedures

6-50-00	Interior Access Doors and Removable Panels
12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-bolt V-band coupling - Removal and Installation
38-31-00	Waste Disposal System - Adjustment and Test
38-31-09	Aft Waste Tank Motor-Pump Filter Unit - Removal and Installation

3. Removal/Installation

A. Removal

(1) Drain and flush waste tank (Ref. 12-15-11).

(2) On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1, FLUSH PUMP AFT LAV 2, and FLUSH PUMP AFT LAV 3.

On aircraft 001-007,
on galley left circuit breaker panel, zone 130, open and tag circuit breaker LIGHTING WATER SVCE PNL.

On aircraft 008-999,
on Flight Engineer/Second Officers Overhead circuit breaker panel, zone 215, open and tag circuit breaker JET PUMP LAV.

(3) Gain access to aft waste tank in aft cargo compartment, zone 167, by removing access panels 161AL, 161AR, and 161BL (Ref. 6-50-00).

NOTE: Disconnect cargo vent line from 161BL (left) panel before removing panel.

C (4) Deleted

(5) Remove V-band clamp connecting ball valve to waste tank (Ref. 20-36-01).

(6) On aircraft 001-031 without SB38-026, disconnect tank flushing line below tank at service panel.

(6) On aircraft 001-031 with SB38-026 and 032-999, disconnect tank flushing line clamp at tank strap mounted bracket, and disconnect hose fitting below tank at service panel.

R (7) On aircraft 001-031 with SB38-032 and 032-999 or
R aircraft not incorporating SB38-055,
R remove agitation system (Ref. 38-31-36).

R (8) Disconnect tank flushing line at tank fitting and remove line.

R (9) Remove toilet drain line V-band clamps at tank and loosen connection (Ref. 20-36-01).

R (10) Loosen or disconnect toilet drain line V-band clamps at toilet connections; remove drain line or move sufficiently to clear tank as required (Ref. 20-36-01).

NOTE: Drain lines No. 2 and No. 4 must be properly marked and identified before removal to ensure proper reinstallation.

R (11) Remove waste tank motor pump filter units (Ref. 38-31-09).

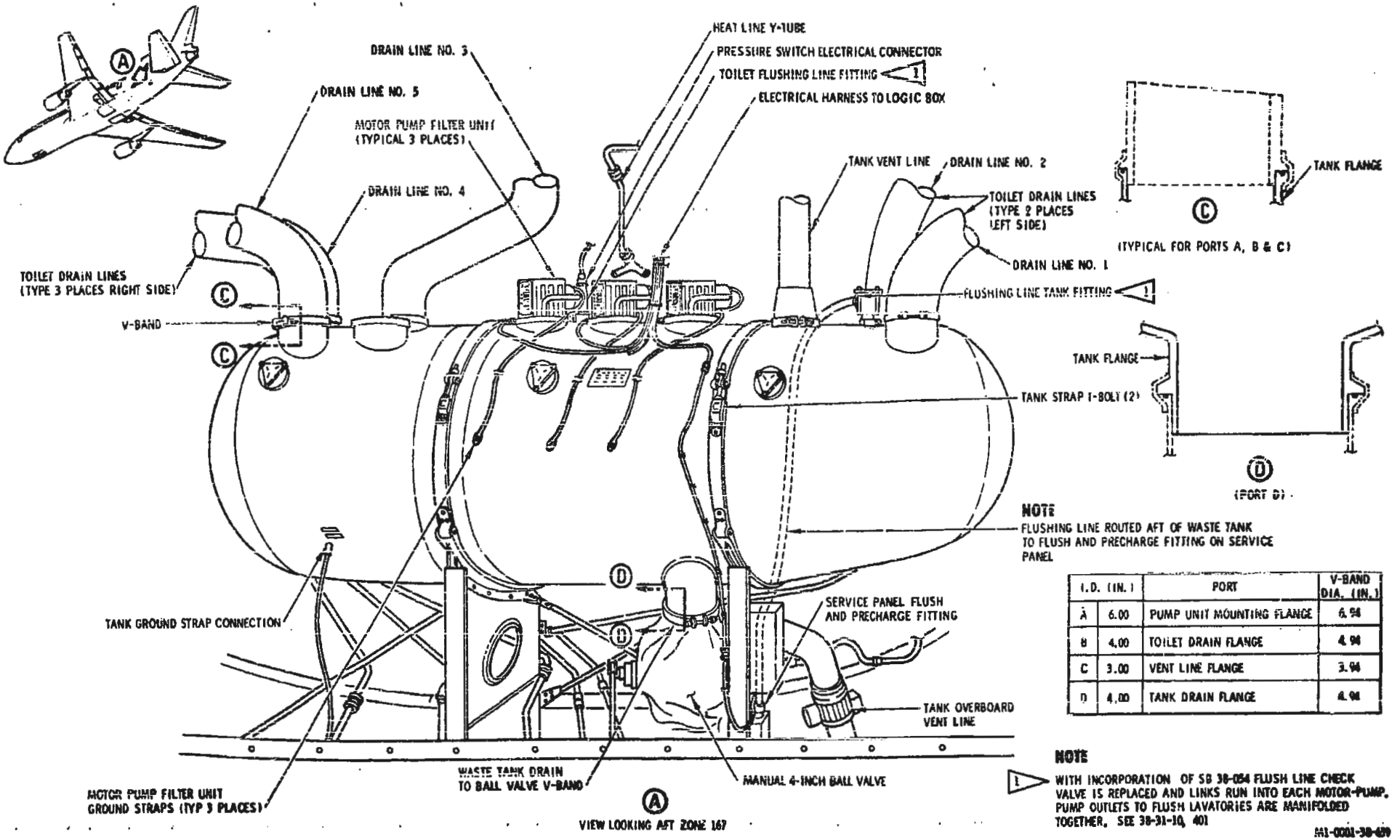
R (12) Remove tank vent line V-band coupling at tank vent flange (Ref. 20-36-01).

R (13) Disconnect tank vent line coupling behind tank and remove section of vent line.

R (14) Remove Y-tube section of pneumatic heat line above tank for clearance during tank removal.

R (15) Disconnect toilet flush line at tank fitting.

R (16) Loosen first joint of flush line manifold connection sufficiently to move toilet flush line clear of tank.


HEAT LINE Y-TUBE
PRESSURE SWITCH ELECTRICAL CONNECTOR
TOILET FLUSHING LINE FITTING 1
ELECTRICAL HARNESS TO LOGIC BOX
DRAIN LINE NO. 3
DRAIN LINE NO. 5
MOTOR PUMP FILTER UNIT (TYPICAL 3 PLACES)
DRAIN LINE NO. 4
TANK VENT LINE
DRAIN LINE NO. 2
TOILET DRAIN LINES (TYPE 2 PLACES LEFT SIDE)
DRAIN LINE NO. 1
FLUSHING LINE TANK FITTING 1
TOILET DRAIN LINES (TYPE 3 PLACES RIGHT SIDE)
V-BAND
TANK STRAP T-BOLT (2)
TANK GROUND STRAP CONNECTION
SERVICE PANEL FLUSH AND PRECHARGE FITTING
TANK OVERBOARD VENT LINE
WASTE TANK DRAIN TO BALL VALVE V-BAND
MANUAL 4-INCH BALL VALVE
MOTOR PUMP FILTER UNIT GROUND STRAPS (TYP 3 PLACES)
VIEW LOOKING AFT ZONE 167
TANK FLANGE
(TYPICAL FOR PORTS A, B & C)
TANK FLANGE
(PORT D)
NOTE
FLUSHING LINE ROUTED AFT OF WASTE TANK TO FLUSH AND PRECHARGE FITTING ON SERVICE PANEL
NOTE
1 WITH INCORPORATION OF SB 38-054 FLUSH LINE CHECK VALVE IS REPLACED AND LINKS RUN INTO EACH MOTOR-PUMP, PUMP OUTLETS TO FLUSH LAVATORIES ARE MANIFOLDED TOGETHER. SEE 38-31-10, 401

	I.D. (IN.)	PORT	V-BAND DIA. (IN.)
A	6.00	PUMP UNIT MOUNTING FLANGE	6.94
B	4.00	TOILET DRAIN FLANGE	4.94
C	3.00	VENT LINE FLANGE	3.94
D	4.00	TANK DRAIN FLANGE	4.94

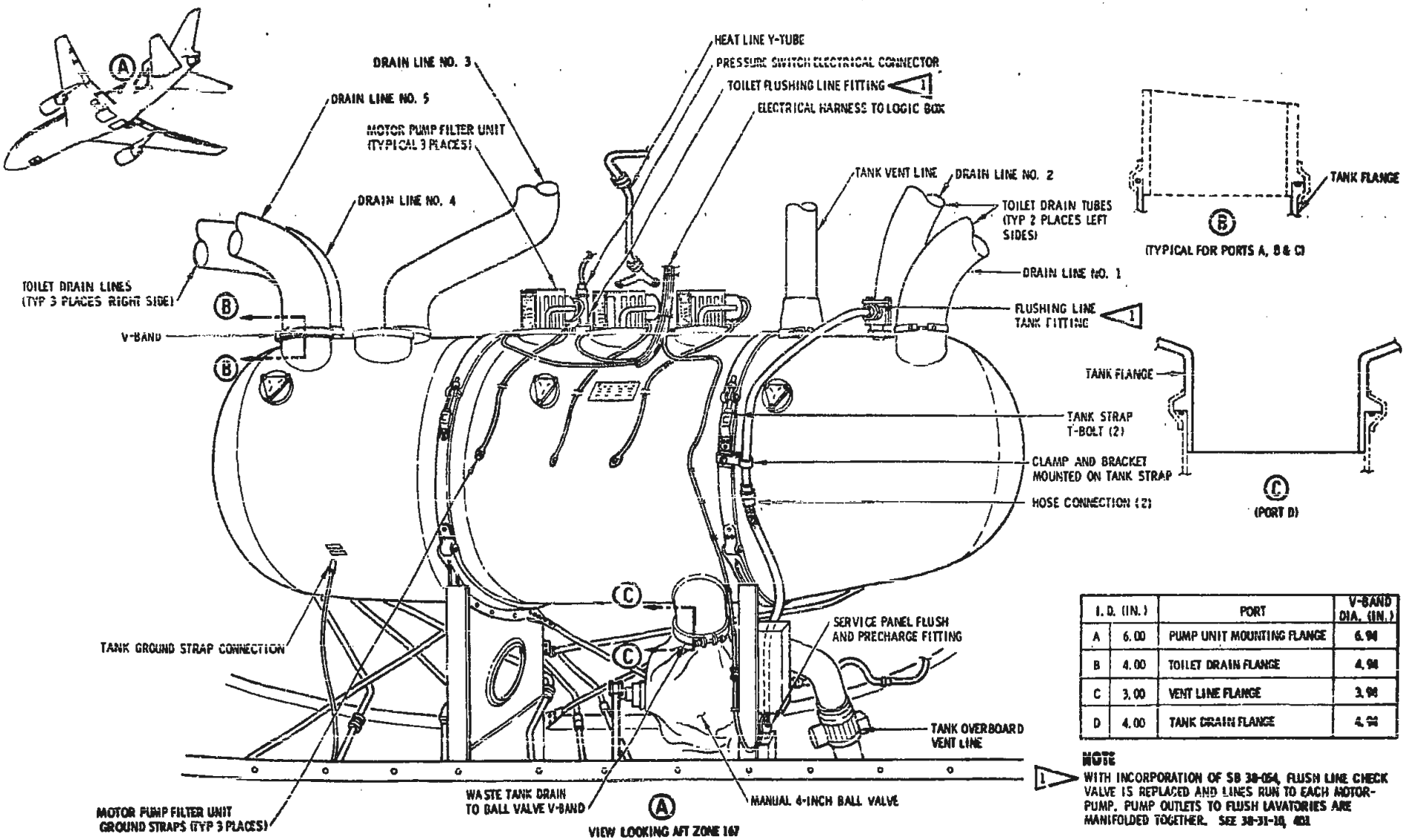
A1-0001-38-039

CR
CR

Aft Waste Tank - Removal and Installation
Figure 401

EFFECTIVITY: 001-031 WITHOUT SB38-026

0018


A
DRAIN LINE NO. 3
DRAIN LINE NO. 5
MOTOR PUMP FILTER UNIT (TYPICAL 3 PLACES)
DRAIN LINE NO. 4
HEAT LINE Y-TUBE
PRESSURE SWITCH ELECTRICAL CONNECTOR
TOILET FLUSHING LINE FITTING 1
ELECTRICAL HARNESS TO LOGIC BOX
TANK VENT LINE
DRAIN LINE NO. 2
TOILET DRAIN TUBES (TYP 2 PLACES LEFT SIDES)
DRAIN LINE NO. 1
FLUSHING LINE TANK FITTING 1
TOILET DRAIN LINES (TYP 3 PLACES RIGHT SIDE)
B
V-BAND
TANK STRAP T-BOLT (2)
CLAMP AND BRACKET MOUNTED ON TANK STRAP
HOSE CONNECTION (2)
C
TANK GROUND STRAP CONNECTION
SERVICE PANEL FLUSH AND PRECHARGE FITTING
TANK OVERBOARD VENT LINE
1
WASTE TANK DRAIN TO BALL VALVE V-BAND
MANUAL 4-INCH BALL VALVE
MOTOR PUMP FILTER UNIT GROUND STRAPS (TYP 3 PLACES)
VIEW LOOKING AFT ZONE 167
TANK FLANGE
(TYPICAL FOR PORTS A, B & C)
(PORT D)

	I. D. (IN.)	PORT	V-BAND DIA. (IN.)
A	6.00	PUMP UNIT MOUNTING FLANGE	6.94
B	4.00	TOILET DRAIN FLANGE	4.94
C	3.00	VENT LINE FLANGE	3.94
D	4.00	TANK DRAIN FLANGE	4.94

NOTE

1 WITH INCORPORATION OF SB 38-054, FLUSH LINE CHECK VALVE IS REPLACED AND LINES RUN TO EACH MOTOR-PUMP. PUMP OUTLETS TO FLUSH LAVATORIES ARE MANIFOLDED TOGETHER. SEE 38-31-10, 401.

CR
CR

Aft Waste Tank - Removal and Installation
Figure 401

EFFECTIVITY: 001-031 WITH SB38-026 AND 032-999

007B

R (17) Disconnect waste tank mount clamp T-bolts and loosen clamp straps.

R (18) Raise tank out of mount saddles and move tank forward to remove from area.

R (19) Cap and cover all ports and wire harnesses. Flush and wipe up any spillage especially in prime structure areas.

B. Installation

(1) Verify circuit breakers opened in Step 3A(2) are open and tagged.

(2) Remove caps and covers from ports and wire harnesses.

(3) Replace all O-rings.

(4) Verify open ports and fluid passages are clean and unobstructed.

(5) Install tank in mount saddles vertically so that tank drain port lines up with ball valve.

(6) Install V-band clamp that connects ball valve to waste tank (Ref. 20-36-01).

(7) Place mount clamp strap assemblies around tank and connect clamp strap T-bolts loosely.

(8) Connect toilet flush line to tank fitting. Tighten all braces and connections.

R (9) On aircraft 001-031 with SB38-032 and 032-999 or
R aircraft not incorporating SB38-055,
R install agitation system (Ref. 38-31-36).

R (10) Install tank vent line connecting coupling behind tank.

R (11) Mate vent line flange to tank flange and install T-bolt V-band clamp (Ref. 20-36-01).

R (12) Install waste tank motor pump filter units (Ref. 38-31-09). Lubricate pump and tank ports liberally with DC33 lubricant.

CAUTION: DO NOT INTERCHANGE DRAIN LINES NO. 2 AND NO. 4.

R (13) Position toilet drain lines in place and install V-band clamps at toilet connections and at tank (Ref. 20-36-01).

R (14) Torque T-bolts connected in Step 3B(7) 25 to 30 pound-inches.

R (15) On aircraft 001-031 without SB38-026, install and connect tank flushing line at service panel below tank and at tank fitting.

R (15) On aircraft 001-031 with SB38-026 and 032-999, install tank flushing and precharge line/hose assembly as follows:

(a) Connect tank flushing line at tank fitting.

(b) Install line clamp at tank strap mounted bracket.

NOTE: Loosen tank fitting V-band at tank flange if required to obtain preload-free alignment with clamp. Retighten V-band to required torque (Ref. 20-36-01).

(c) With hose upper fitting connected to tank flushing line below the tank strap-mounted bracket, connect lower hose fitting to flushing/precharge fitting at service panel below tank.

(d) Verify all fittings are tight and hose is not kinked or twisted.

R (16) Install Y-tube section of pneumatic heat line above tank.

CR (17) Deleted

R (18) Remove tags and close circuit breakers opened in Step 3A(2).

R (19) Perform system tests (Ref. 38-31-00).

R (20) Install access panel 161BL and connect cargo vent line in aft cargo compartment.

R (21) Install panels 161AL and 161AR in aft cargo compartment.

FORWARD WASTE TANK ASSEMBLY - REMOVAL AND INSTALLATION

1. Equipment and Materials

Caps and Covers

Silicone Grease, PN DC33, Dow Corning, or equivalent

O-rings

2. Referenced Procedures

6-40-00	Exterior Access Doors and Removable Panels
12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-bolt V-band Coupling - Removal and Installation
38-31-00	Waste Disposal System - Adjustment and Test
38-31-08	Forward Waste Tank Motor-Pump Filter Unit - Removal and Installation

3. Removal/Installation

A. Removal

(1) Drain and flush waste tank (Ref. 12-15-11).

R (2) On Flight Engineer/Second Officers overhead circuit breaker panel, CB2, zone 215, open and tag circuit breakers LAV FWD LAV FLUSH PUMP NO. 1, (B3), NO. 2, (B6), and NO. 3, (B9).

On aircraft 001-007,
on galley left circuit breaker panel, zone 130, open and tag circuit breaker LIGHTING SVCE PNL.

On aircraft 008-999,
on Flight Engineer/Second officers overhead circuit breaker panel, zone 215, open and tag circuit breaker JET PUMP LAV.

(3) Gain access to forward waste tank, zone 113, through access door 112AB (Ref. 6-40-00).

(4) Release Camloc fastners and remove shroud as necessary to gain access to waste tank assembly.

(5) Remove forward and top shroud frame members.

(6) Remove drip pan under right side of tank.

(7) Remove lower section of tank overboard vent tube as follows (Ref. 20-36-01):

(a) Remove V-band clamp at lower vent air jet pump.

(b) Remove V-band clamp at joint below tank above exhaust flow control valve.

(c) Remove section of vent tube.

(8) Remove V-band clamp connecting ball valve to waste tank (Ref. 20-36-01).

(9) Remove motor-pump filter units (3) to reduce weight (Ref. 38-31-09).

(10) Disconnect and stow flushing fluid pressure switch electrical connector at logic control box (Ref. Fig. 401).

C (11) DELETED

(12) Disconnect left and right toilet flush lines at tank fitting. Disconnect left toilet flush line at cabin floor connection.

NOTE: Left toilet flush line is clamped to toilet drain line and covered with a shroud. These will be removed with drain line.

R (13) On aircraft 001-031 with SB38-032 and 032-999 or
R aircraft without SB38-055,
R remove agitation system (Ref. 38-31-36).

R (14) Remove V-band clamps from left and right toilet drain tubes at tank flanges (Ref. 20-36-01).

R (15) Loosen V-band clamp and tube supports from right toilet drain tube at cabin floor (Ref. 20-36-01). Disconnect tube and move clear of tank flange.

R (16) Disconnect V-band clamp and tube supports from left toilet drain tube at cabin floor. Remove toilet drain tube with toilet flush line and shroud.

R (17) Remove tank vent tube V-band clamps at tank flange and above vent air jet pump connection (Ref. 20-36-01).

R (18) Release vent tube from support bracket and remove vent tube.

R (19) Disconnect tank flush line below tank at service panel.

R (20) Disconnect tank flush line at tank fitting and remove flush line.

R (21) Disconnect waste tank mount clamp T-bolts and loosen clamp straps.

R (22) Lift tank sufficiently to clear tank saddles and move tank to left side until right side of tank is clear of its saddle.

R (23) Lower right side of tank to skin line while raising left side to a vertical position.

R (24) Rotate tank forward and remove from aircraft.

R (25) Cap and cover all ports and electrical connectors. Flush and wipe up any spillage especially in prime structure areas.

B. Installation

(1) Verify circuit breakers opened in Step 3A(2) are open and tagged.

(2) Remove caps and covers from ports and electrical connectors.

(3) Verify all open ports and fluid passages are clean and unobstructed.

(4) Replace all O-rings.

(5) Position tank in a vertical position with right side of tank down between mount saddles.

(6) Ensure top of tank is toward right side of aircraft.

(7) Lower left side of tank until tank is in a horizontal position.

(8) Raise tank sufficiently to clear tank saddles and move toward right side of aircraft.

(9) Lower tank and mate to tank saddles and ball valve, ensuring tank drain port is properly lined up with ball valve.

(10) Install V-band clamp that connects ball valve to waste tank (Ref. 20-36-01).

(11) Place mount clamp strap assemblies around tank and connect clamp strap T-bolts loosely.

(12) Position tank flush line and secure connection below tank at service panel.

(13) Torque T-bolts connected in Step 3B(11) 25 to 30 pound-inches.

(14) Connect tank flush line to tank fitting (Ref. Fig. 401).

(15) Reinstall vent tube above waste tank and install V-band clamps (Ref. 20-36-01)

(16) Secure vent tube connection at tank and secure tube support bracket above tank.

(17) Install left toilet drain tube and toilet flush line as follows:

NOTE: Left toilet flush line is clamped to toilet drain line and covered with a shroud. These will be installed at the same time.

(a) Place flush line and drain tube in position for connecting to tank and toilet connections.

(b) Connect toilet flush line at cabin floor and waste tank fittings.

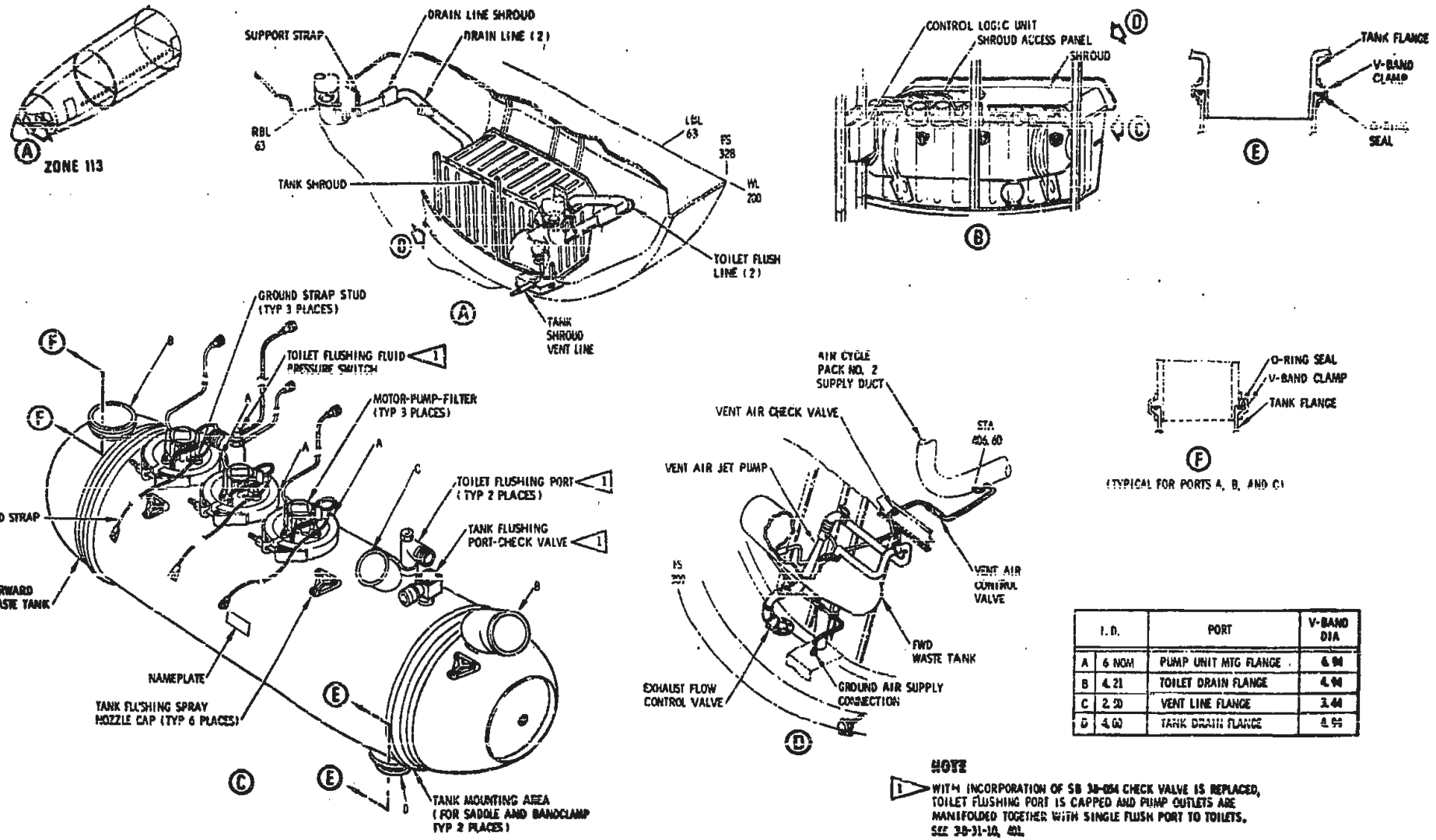
(c) Connect toilet drain tube at cabin floor and tank flanges with V-band clamps (Ref. 20-36-01).

(d) Attach and secure flush line and drain tube supports.

(18) Mate right toilet drain tube to tank flange and install V-band clamp (Ref. 20-36-01).

(19) Connect right toilet flush line to tank fitting.

(20) Attach and secure right flush line and drain tube supports.



	I.D.	PORT	V-BAND DIA
A	6 NOM	PUMP UNIT MTG FLANGE	6.94
B	4.21	TOILET DRAIN FLANGE	4.94
C	2.20	VENT LINE FLANGE	3.44
D	4.00	TANK DRAIN FLANGE	4.94

NOTE

1. WITH INCORPORATION OF SB 38-084 CHECK VALVE IS REPLACED, TOILET FLUSHING PORT IS CAPPED AND PUMP OUTLETS ARE MANIFOLDED TOGETHER WITH SINGLE FLUSH PORT TO TOILETS. SEE 38-31-10, 401.

MI-0001-38-03

CR Forward Waste Tank - Removal and Installation
CR Figure 401

EFFECTIVITY: ALL

001B

R (21) On aircraft 001-031 with SB38-032 and 032-999 or
R aircraft without SB38-055,
R install waste tank agitation system (Ref. 38-31-36).

CR (22) DELETED

R (23) Connect and secure flushing fluid pressure switch electrical connector at logic box.

R (24) Install motor pump filter units (Ref. 38-31-09). Lubricate pump and tank ports liberally with DC33 lubricant.

R (25) Install lower section of tank overboard vent tube as follows (Ref. 20-36-01).

(a) Place vent tube section in position between air jet pump and exhaust flow control valve.

(b) Install V-band clamp connecting tube to air jet pump.

(c) Install V-band clamp connecting tube to exhaust flow control valve.

R (26) Install drip pan under right side of tank.

R (27) Install forward and top shroud frame members.

R (28) Install and secure shroud with Camloc fasteners.

R (29) Remove tags and close circuit breakers opened in Step 3A2.

R (30) Perform system tests (Ref. 38-31-00).

R (31) Close access door 112AB (Ref. 6-40-00).

R # WASTE TANK - CLEANING

R 1. Equipment and Materials

R High pressure water hose

R 2. Referenced Procedures

R 12-15-11 Waste Disposal System - Servicing

R 38-31-06 Waste Tank Pump Motor - Removal and Installation

R 3. Cleaning Procedure

R A.

R Clean forward and aft waste tank as follows:

R (1) On Flight Engineers/Second Officers overhead circuit breaker panel CB2 open and tag FWD LAV FLUSH PUMP NO. 1 (B3), NO. 2 (B6), and NO. 3 (B9) circuit breakers.

R On galley right circuit breaker panel, zone 130, open and tag FLUSH-PUMP AFT LAV NO. 1 (B11), NO. 2 (B8), and NO. 3 (B5) circuit breakers.

R (2) Drain applicable waste tank and leave lavatory servicing truck connected with valve open (Ref. 12-15-11).

R NOTE: Do not pre-charge waste tank.

R (3) For forward waste tank access, open access door 112AB and enter forward electronic service center, zone 112. Proceed aft into zone 113. Remove access panel from top of forward waste tank shroud.

R For access to aft waste tank, zone 167, remove aft bulkhead center panel (161AL) in aft cargo compartment (FS1792).

R (4) Remove and clean center flush pump. Retain pump for re-installation (Ref. 38-31-06).

R (5) Using high pressure water hose, thoroughly clean the interior of waste tank. Assure that all waste material is removed and the interior walls of tank are clean.

R (6) Re-install flush pump (Ref. 38-31-06).

R (7) Re-install forward waste tank shroud access panel and
R close door 112AB.

R Re-install aft bulkhead center panel (161AL) in aft
R cargo compartment.

R (8) Service applicable lavatory tank to proper level (Ref.
R 12-15-11).

R (9) Remove tag and close circuit breakers opened in Step
R 3A(1).

WASTE TANK PUMP MOTOR - REMOVAL AND INSTALLATION

1. General

The following removal and installation procedure is applicable for the forward and aft waste tank pump motors, except for circuit breakers and access panels.

2. Equipment and Materials

Lock-wire, MS20995C32, or equivalent

O-ring (Ref. Fig. 401)

Protective cap

3. Removal/Installation

A. Removal

(1) For forward pump motors: on Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215,
R open and tag circuit breakers FWD LAV FLUSH PUMP NO.
R 1(B3), NO. 2(B6), and NO. 3(B9).

(2) For aft pump motors: on galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH
R PUMP AFT LAV 1(J2), 2(H8), and 3(H17).

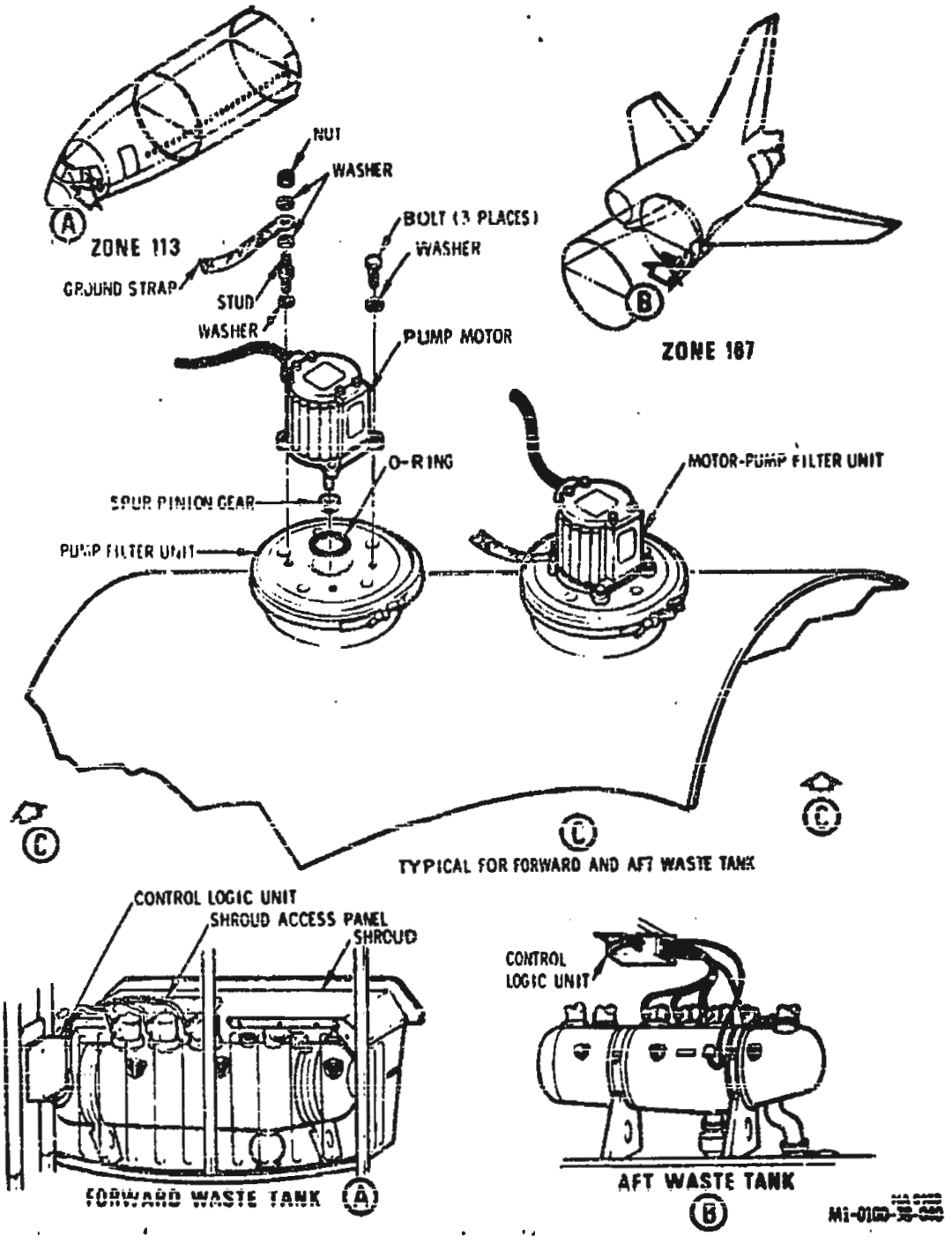
(3) For forward pump motor access, open access door 112AB and enter forward electronic service center, zone 112. Proceed aft into zone 113. Remove access panel from top of forward waste tank shroud (Ref. Fig. 401).

(4) Gain access to aft pump motors, zone 167, by removing aft bulkhead center panel in aft cargo compartment (FS 1792).

(5) Disconnect applicable pump motor electrical plug from receptacle on control logic unit and cap plug.

(6) Remove nut, washers, and grounding strap from stud securing motor to pump-filter unit.

(7) Remove stud and washer and bolts and washers which secure motor to pump-filter unit.



R Forward and Aft Waste Tank Pump Motor - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

R
0508

CAUTION: USE CARE NOT TO DROP SPUR PINION GEAR WHICH IS LOOSELY PRESSED ONTO PUMP MOTOR SHAFT.

(8) Lift pump motor, O-ring, and spur pinion gear from pump-filter unit.

(9) Remove spur pinion gear from pump motor shaft, and retain for installation.

C (10) All toilet component parts in contact with toilet
C fluids and waste must be thoroughly cleaned and
C disinfected prior to shipping as follows:

C (a) As soon as possible after unit removal, thoroughly
C clean using a steam cleaner if available.
C Otherwise, use high pressure water.

C (b) Soak the unit at least 30 minutes in a
C Clorox/water solution to disinfect. The solution
C can be made using 4 ounces of Clorox or equivalent
C per 5 gallons of water.

C (c) Allow unit to drain and dry and then package for
C shipping.

C CAUTION: AVOID GETTING EXCESS WATER OR STEAM ON THE MOTOR
C PORTION OF THESE UNITS.

B. Installation

R (1) Verify circuit breakers opened in Step 3A(1) or 3A(2), as applicable are open and tagged.

(2) Manually press spur pinion gear onto pump motor shaft.

R (3) Install new O-ring and pump motor with pinion gear on
R pump-filter unit.

(4) Secure pump motor to pump-filter unit with stud and washer and bolts and washers. Install lock-wire.

(5) Install grounding strap to stud with washer and nut.

(6) Connect pump motor electrical plug to applicable receptacle on control logic unit.

(7) For forward pump motor, reinstall waste tank shroud access panel and close door 112AB.

(8) For aft pump motor, reinstall access panel removed in Step 3A(4).

(9) Remove tags and close circuit breakers opened in Step 3A(1) or 3A(2).

FORWARD WASTE TANK MOTOR-PUMP FILTER UNIT REMOVAL AND INSTALLATION

1. General

R There are three motor-pump filter units located on top of the
R forward waste tank. The removal and installation procedure is
R identical for each unit.

2. Equipment and Materials

Protective cap

Plastic bag

Silicone Grease, PN DC33, Dow Corning, or equivalent

O-rings (Ref. Fig. 401)

C 38-31-03-0003 Puller - Toilet Flush Pump (L-1011)

3. Referenced Procedures

12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-Bolt V-Band Coupling - Removal and Installation
38-31-00	Waste Disposal System - Adjustment and Test

4. Removal/Installation

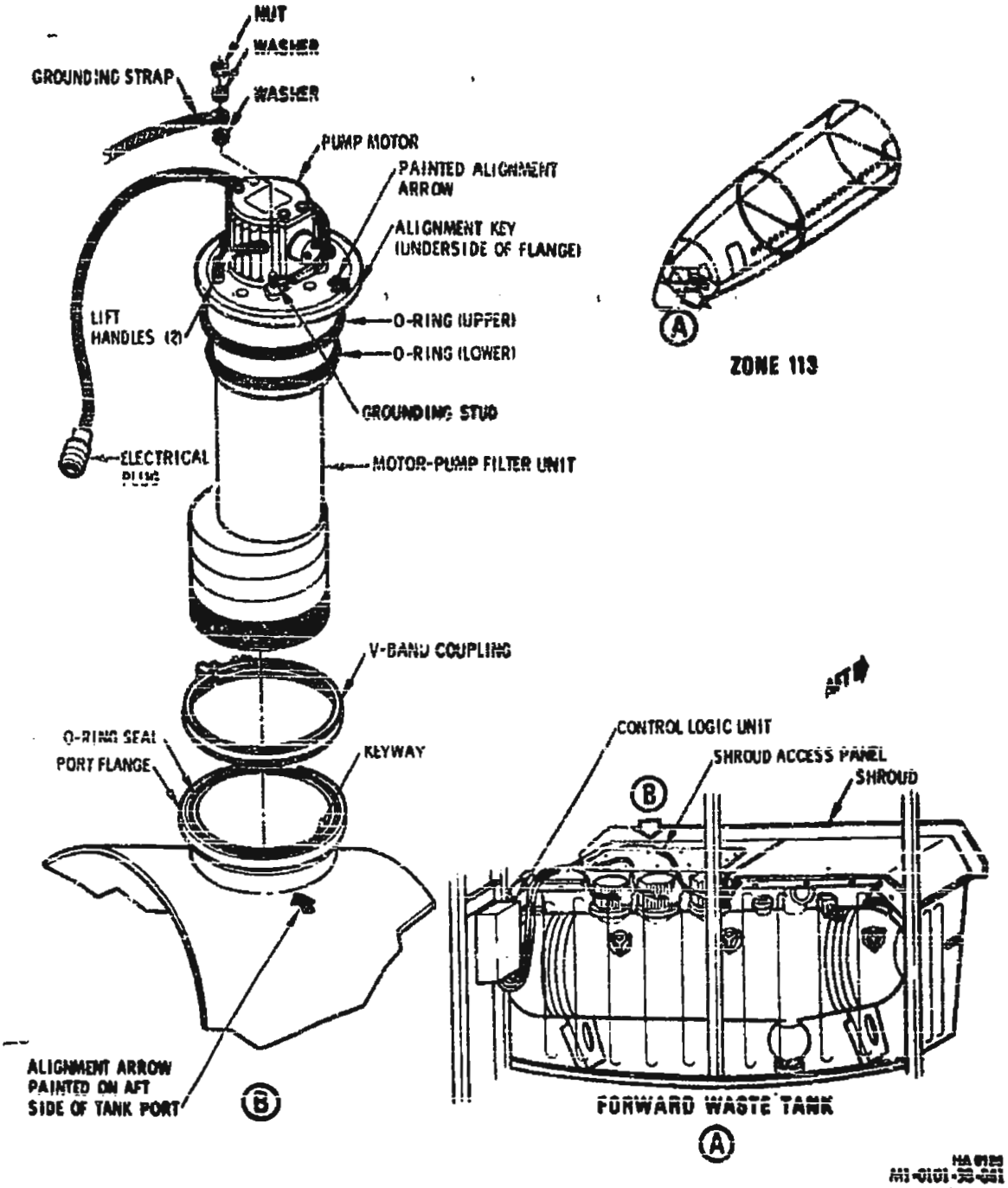
A. Removal

R (1) Drain and flush Waste Tank; do not precharge (Ref.
R 12-15-11).

R (2) On Flight Engineer/Second Officers overhead circuit
R breaker panel CB2, zone 215, open and tag circuit
R breakers FWD LAV FLUSH PUMP NO. 1, NO. 2, and NO. 3.

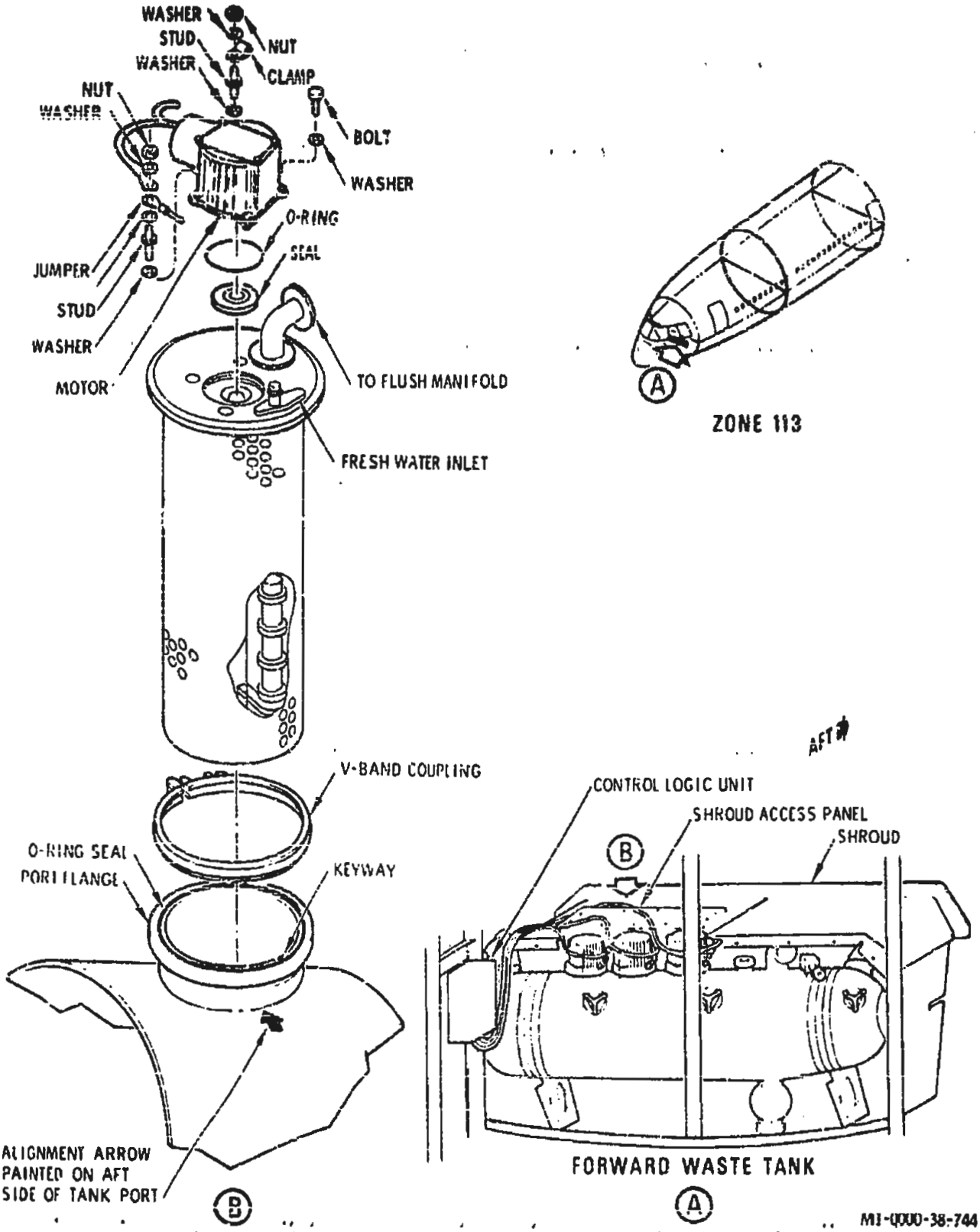
R (3) Open access door 112AB, enter forward electronic
R service center, zone 112, and proceed aft into zone
R 113.

R (4) Remove access panel from top of forward waste tank shroud (Ref. Fig. 401).



Forward Waste Tank Motor-Pump Filter Unit
Removal and Installation
Figure 401

EFFECTIVITY: AIRCRAFT WITHOUT SB38-054



R Forward Waste Tank Motor-Pump Filter Unit
R Removal and Installation
R Figure 401

EFFECTIVITY: AIRCRAFT WITH SB38-054

001R

R (5) onaircraft with SB38-054,
R remove hose coupling to manifold assembly and loosen
R hose clamp at fresh water inlet, all on top of
R Motor-Pump Filter Unit.

R (6) Disconnect applicable pump motor electrical plug from receptacle on control logic unit and cap plug.

R (7) Remove nut, washers, and grounding strap from stud on motor-pump filter unit.

R (8) Loosen V-band coupling securing motor-pump filter unit to waste tank (Ref. 20-36-01).

CAUTION: CARE MUST BE TAKEN NOT TO DAMAGE TANK FLANGE DURING PUMP REMOVAL.

R (9) Lift unit partially from waste tank and allow any residue to drain from unit into tank.

NOTE: If pump is stuck in port, gradually pry pump out with a blunt wedged tool by working gradually around pump periphery.

R (10) Lift unit from tank and insert into plastic bag while holding over open port, to minimize dripping onto aircraft interior. Wipe up any spillage.

R (11) Remove O-ring seal from flange of waste tank port.

CR (12) All toilet component parts in contact with toilet
C fluids and waste must be thoroughly cleaned and
C disinfected prior to shipping as follows:

C (a) As soon as possible after unit removal, thoroughly
C clean using a steam cleaner if available.
C Otherwise, use high pressure water.

C (b) Soak the unit at least 30 minutes in a
C Clorox/water solution to disinfect. The solution
C can be made using 4 ounces of Clorox or equivalent
C per 5 gallons of water.

C (c) Allow unit to drain and dry and then package for
C shipping.

C CAUTION: AVOID GETTING EXCESS WATER OR STEAM ON THE MOTOR
C PORTION OF THESE UNITS.

B. Installation

(1) Verify circuit breakers opened in Step 4A(2) are opened and tagged.

(2) Verify open port and fluid passage are clean and unobstructed.

C (3) Verify installation and proper seating of check valve
C in outlet port.

C NOTE: On those pumps with a green dot on motor
C mounting flange, reach into outlet port and
C apply slight pressure downward. Flapper check
C valve should securely cover discharge opening.

C On pumps with old spring loaded check valve
C installed, using flashlight look into outlet
C port. Valve should be clearly visible.

(4) Install upper and lower O-rings on motor-pump filter unit (ref. Fig. 401). Apply a liberal application of DC33 silicone grease to O-ring and mating surface of tank.

(5) Install O-ring seal into groove on flange of waste tank port. Lube O-ring with DC33 silicone grease.

R (6) Insert motor-pump filter unit into port of waste tank,
R aligning arrows and verifying key on flange of unit
R fully engages with keyway in flange of port.

(7) Install V-band coupling (Ref. 20-36-01).

(8) Secure grounding strap with washers and nut to stud on unit.

(9) On aircraft with SB38-054, reconnect hose coupling to manifold assembly and fresh water inlet hose to top of Motor-Pump Filter Unit.

(10) Connect pump motor electrical plug to applicable receptacle on control logic unit.

(11) Service forward waste tank with precharge fluid (Ref. 12-15-11).

(12) Remove tags and close circuit breakers opened in Step 4A(2).

(13) Perform BITE test for motor-pump-filter units.

(14) Reinstall waste tank shroud access panel and close access door 112AC.

CR FORWARD WASTE TANK MOTOR-PUMP FILTER UNIT - CLEANING/PAINTING

CR 1. Equipment and Materials

CR Clorox

CR 2. Reference Procedures

CR 12-15-11 Waste Disposal System - Servicing

CR 38-31-00 Waste Disposal System - Adjustment and Test

CR 38-31-05 Waste Tank - Cleaning

CR 3. Cleaning

CR CAUTION: AVOID GETTING EXCESS WATER OR STEAM ON MOTOR PORTION
CR OF UNIT.

CR A. As soon as possible after unit removal, thoroughly clean
CR using a steam cleaner if available. Otherwise, use high
CR pressure water.

CR B. Soak unit at least 30 minutes in a Clorox/water solution to
CR disinfect. The solution can be made using 4 oz. of Clorox
CR or equivalent per 5 gallons of water.

CR C. Allow unit to drain.

CR D. Verify installation and proper seating of check valve in
CR outlet port.

CR NOTE: On those pumps with a green dot on motor mounting
CR flange, reach into outlet port and apply slight
CR pressure downward. Flapper check valve should
CR securely cover discharge opening.

CR On pumps with old spring loaded check valve
CR installed, using flashlight look into outlet port.
CR Valve should be clearly visible.

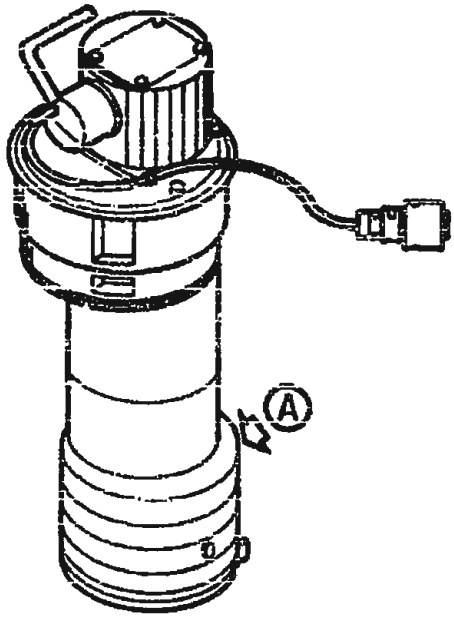
CR E. Remove filter basket by removing nut, flat washer, crescent
CR washer, bearing plate, and teflon washer (Ref. Fig. 701).

CR F. Clean basket thoroughly using stiff bristle brush.

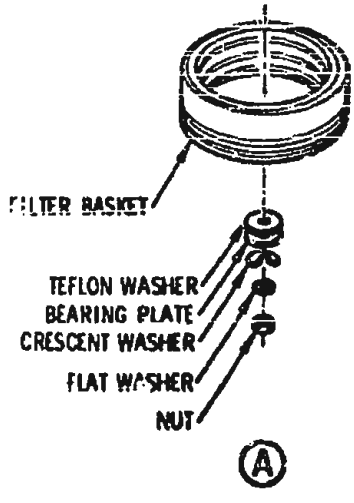
CR G. Reinstall filter basket. Hold basket firmly against
CR impeller housing while turning nut until bearing plate makes

CR full contact with filter basket, then torque nut to 25 ± 1
CR inch pounds.

CR H. Rotate filter basket to ensure no binding exists.



VERIFY INSTALLATION AND PROPER SEATING OF CHECK VALVE



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CR
CR

Motor-Pump-Filter Assembly
Figure 701

R EFFECTIVITY: ALL
R
001B

AFT WASTE TANK MOTOR-PUMP FILTER UNIT - REMOVAL AND INSTALLATION

1. General

It is preferable that the waste tank be empty when performing removal and installation procedures of the motor-pump filter units; however, the waste tank may be precharged for these procedures. If the waste tank contains any waste, it must be drained and flushed (Ref. 12-15-11) before removing the motor-pump filter units. A plastic bag must be available for insertion of the motor-pump filter unit immediately upon removal, to preclude dripping of any flushing fluid residue.

2. Equipment and Materials

Protective cap

Plastic bag

Silicone Grease, PN DC33, Dow Corning, or equivalent

O-Rings (Ref. Fig. 401)

3. Referenced Procedures

12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-Bolt V-Band Coupling - Removal and Installation
38-31-00	Waste Disposal System - Adjustment and Test

4. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1 (B11), 2 (B8), and 3 (B5).

(2) Gain access to aft waste disposal system, zone 167, by removing aft bulkhead center panel in aft cargo compartment, FS 1792.

R (3) On aircraft with SB38-054,
R remove hose coupling to manifold assembly and loosen

hose clamp at fresh water inlet, all on top of Motor-Pump Filter Unit.

(4) Disconnect applicable pump motor electrical plug from receptacle on control logic unit (Ref. Fig. 401) and cap plug.

(5) Remove nut, washers, and grounding strap from stud on motor-pump filter unit.

(6) Loosen V-band coupling (Ref. 20-36-01) securing motor-pump filter unit to waste tank.

CAUTION: CARE MUST BE TAKEN NOT TO DAMAGE TANK FLANGE DURING PUMP REMOVAL.

(7) Lift unit partially from waste tank and allow any residue to drain from unit into tank.

NOTE: If pump is stuck in port, gradually pry pump out with a blunt wedged tool by working gradually around pump periphery. Verify O-ring on body of pump has not rolled off and dropped into tank.

R (8) Lift unit from tank and insert into plastic bag while holding over open port, to minimize dripping onto aircraft interior. Wipe up any spillage.

(9) Remove O-ring seal from flange of waste tank port.

C (10) All toilet component parts in contact with toilet
C fluids must be thoroughly clean and disinfected prior
C to shipping as follows:

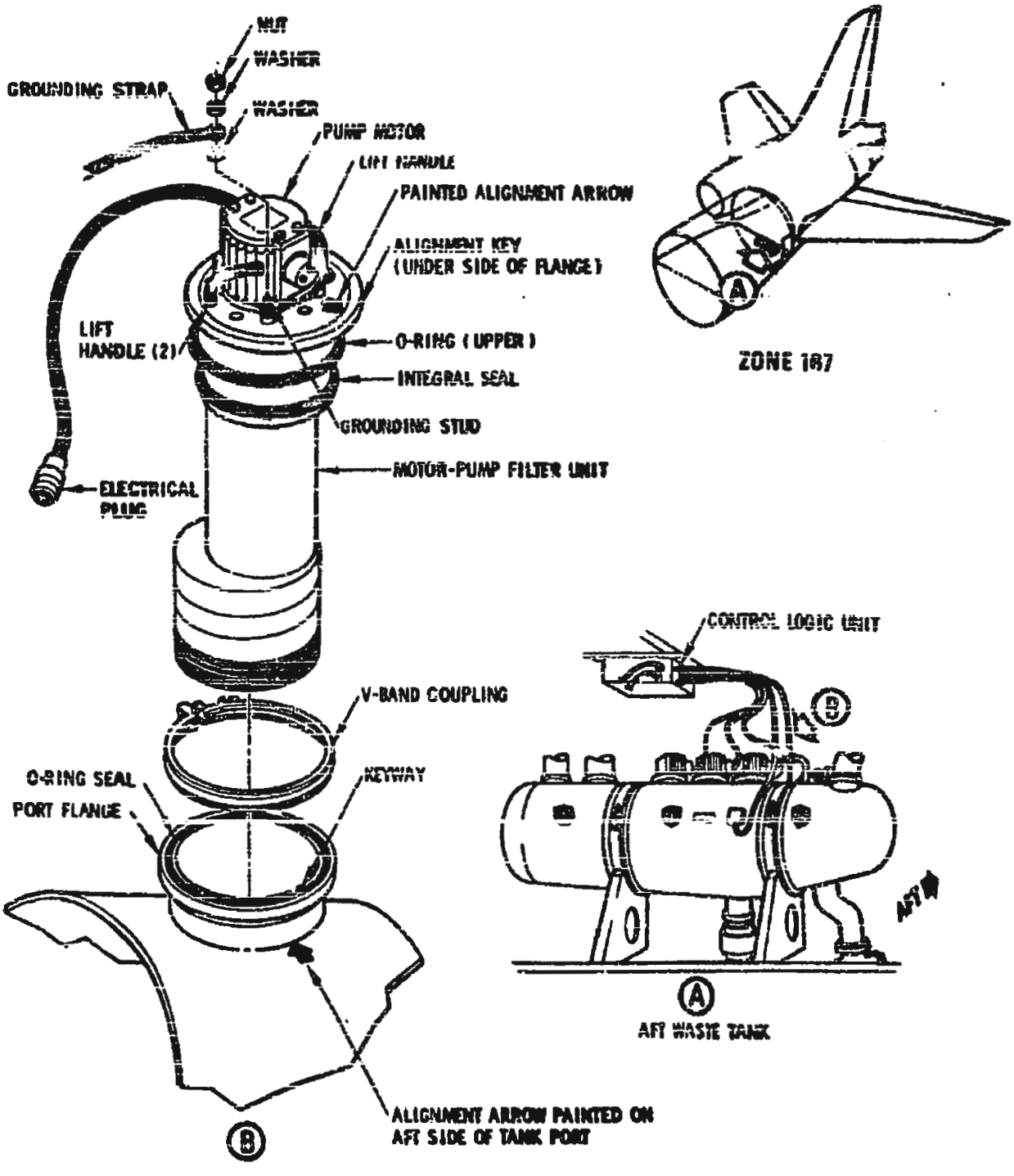
C (a) As soon as possible after unit removal, thoroughly
C clean using a steam cleaner if available.
C Otherwise, use high pressure water.

C (b) Soak the unit at least 30 minutes in a
C Clorox/water solution to disinfect. The solution
C can be made using 4 ounces of Clorox or equivalent
C per 5 gallons of water.

C (c) Allow unit to drain and dry and then package for
C shipping.

C CAUTION: AVOID GETTING EXCESS WATER OR STEAM ON THE MOTOR
C PORTION OF THESE UNITS.

B. Installation



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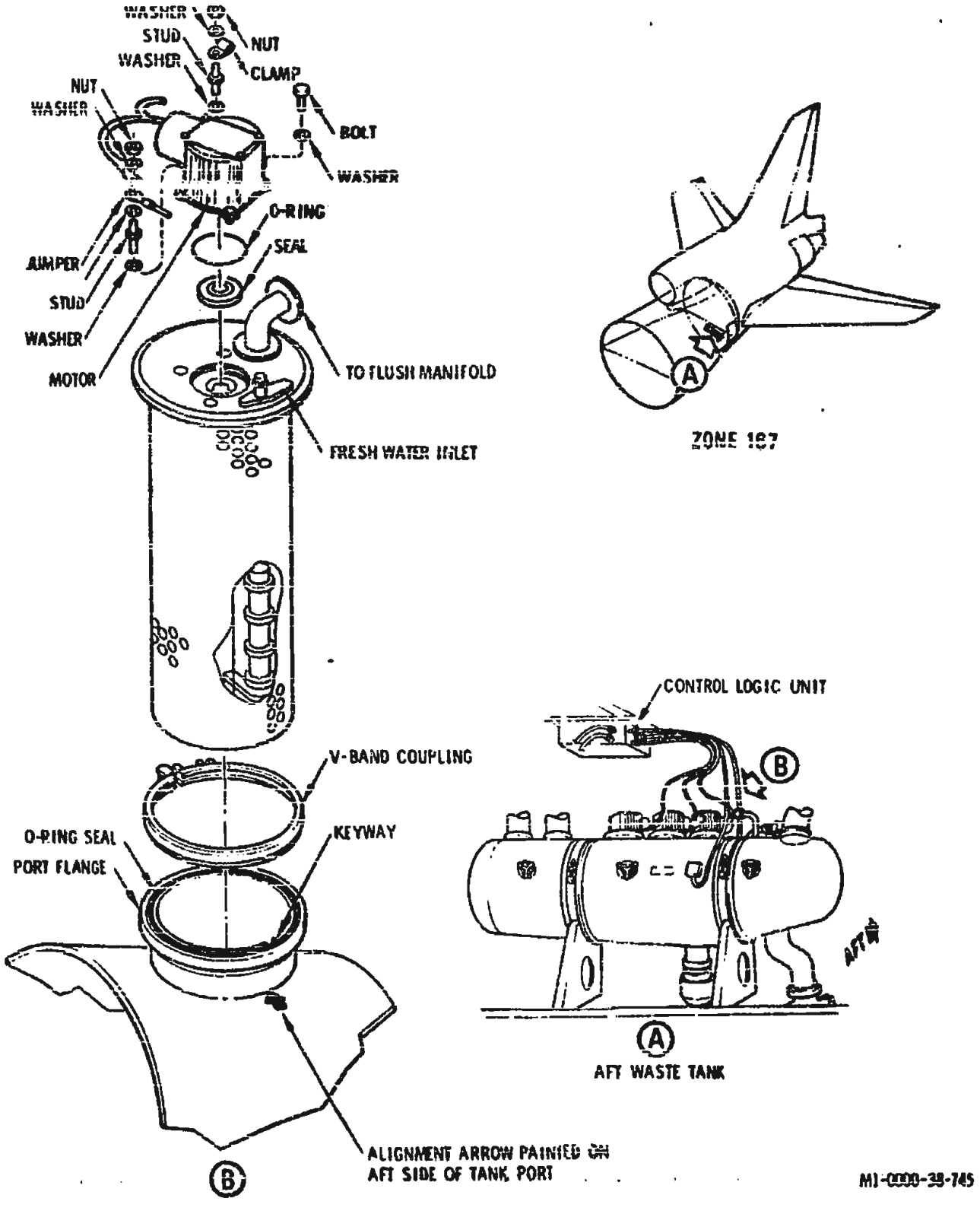
R Aft Waste Tank Motor-Pump Filter Unit - Removal and Installation
R Figure 401

EFFECTIVITY: AIRCRAFT WITHOUT SB38-054



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R Aft Waste Tank Motor-Pump Filter Unit - Removal and Installation
R Figure 401

EFFECTIVITY: AIRCRAFT WITH SB38-054

001B

(1) Verify circuit breakers opened in Step 4A(1) are open and tagged.

(2) Verify open port and fluid passage are clean and unobstructed.

C (3) Verify installation and proper seating of check valve
C in outlet port.

C NOTE: On those pumps with a green dot on motor
C mounting flange, reach into outlet port and
C apply slight pressure downward. Flapper check
C valve should securely cover discharge opening.

C On pumps with old spring loaded check valve
C installed, using flash-light look into outlet
C port. Valve should be clearly visible.

C (4) Install O-ring on motor-pump filter unit (Ref. Fig.
C 401). Apply a liberal application of DC33 silicone
C grease to O-ring and mating surface of pump and tank
C port opening.

(5) Install O-ring seal into groove on flange of waste tank port. Lube O-ring with DC33 silicone grease.

(6) Insert motor-pump filter unit into port of waste tank,
C aliging arrows and verifying that key on flange of unit fully engages with keyway in flange of port.

(7) Install V-bank coupling (Ref. 20-36-01).

(8) Secure grounding strap with washers and nut to stud on unit.

(9) On aircraft with SB38-054,
reconnect hose coupling to manifold assembly and fresh water inlet hose to top of Motor-Pump Filter Unit.

(10) Connect pump motor electrical plug to applicable receptacle on control logic unit.

(11) Service waste tank with precharge fluid (Ref. 12-15-11).

(12) Remove tags and close circuit breakers opened in Step 4A(1).

(13) Perform BITE test for motor-pump-filter units (Ref. 38-31-00).

(14) Reinstall aft bulkhead center panel.

CR AFT WASTE TANK MOTOR-PUMP FILTER UNIT - CLEANING

CR 1. Cleaning

CR A. Refer to 38-31-08 Cleaning/Painting.

WASTE SYSTEM PRESSURE SWITCH - REMOVAL AND INSTALLATION

1. General

This removal and installation procedure is applicable for the waste system pressure switch installed on either the forward or aft waste tank. The procedure is the same for either installation, except for circuit breakers and access panels.

2. Equipment and Materials

Protective cap

O-ring

Lock-wire, MS20995C32, or equivalent

3. Removal/Installation

A. Removal

(1) For forward waste system: On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1 (B3), NO. 2 (B6), and NO. 3 (B9).

(2) For aft waste system: On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1 (B11), FLUSH PUMP AFT LAV 2 (B8), and FLUSH PUMP AFT LAV 3 (B5).

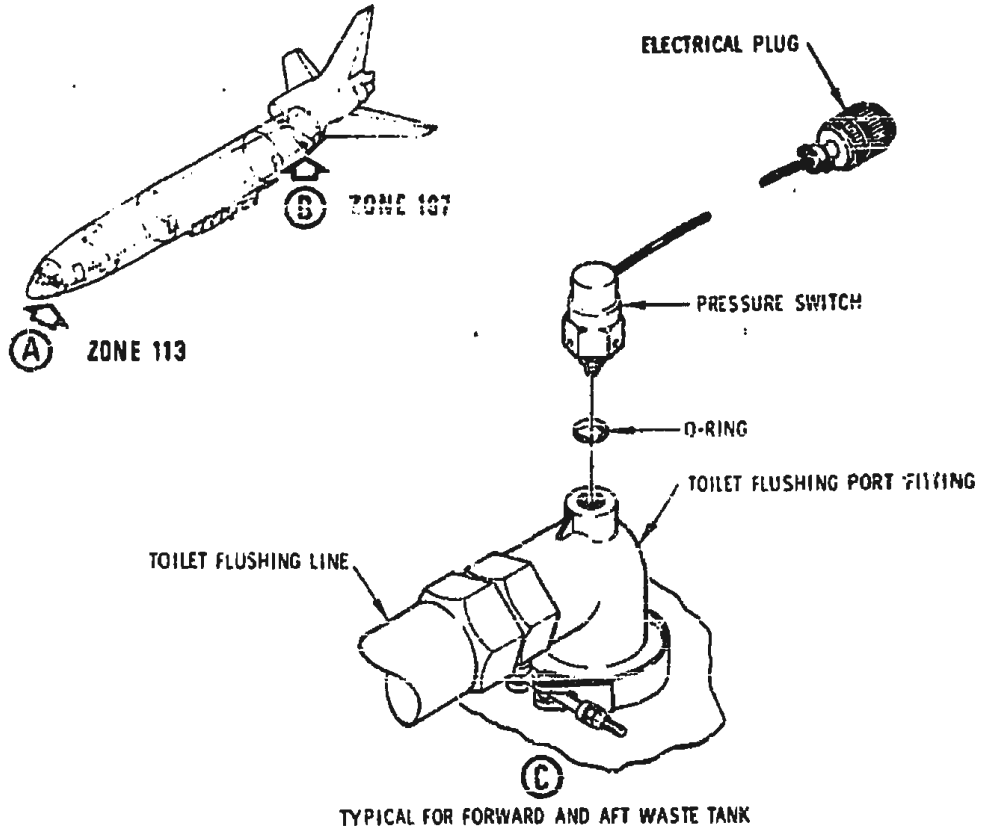
(3) For access to forward waste tank, zone 113, open access door 112AB. Remove access panel from top of forward waste tank shroud (Ref. Fig. 401).

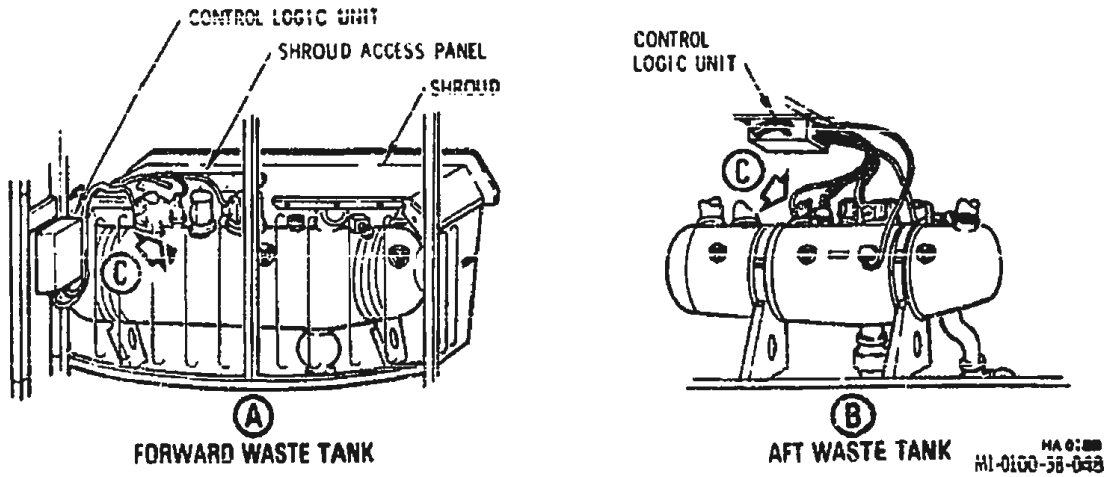
NOTE: On aircraft with SB38-054, refer to Figures 402 and 403.

(4) For access to aft waste tank, zone 167, remove aft bulkhead center panel, FS 1792, in aft cargo compartment.

(5) Disconnect pressure switch electrical plug from receptacle on control logic unit and cap plug.

(6) Remove pressure switch and O-ring from toilet flushing port fitting.

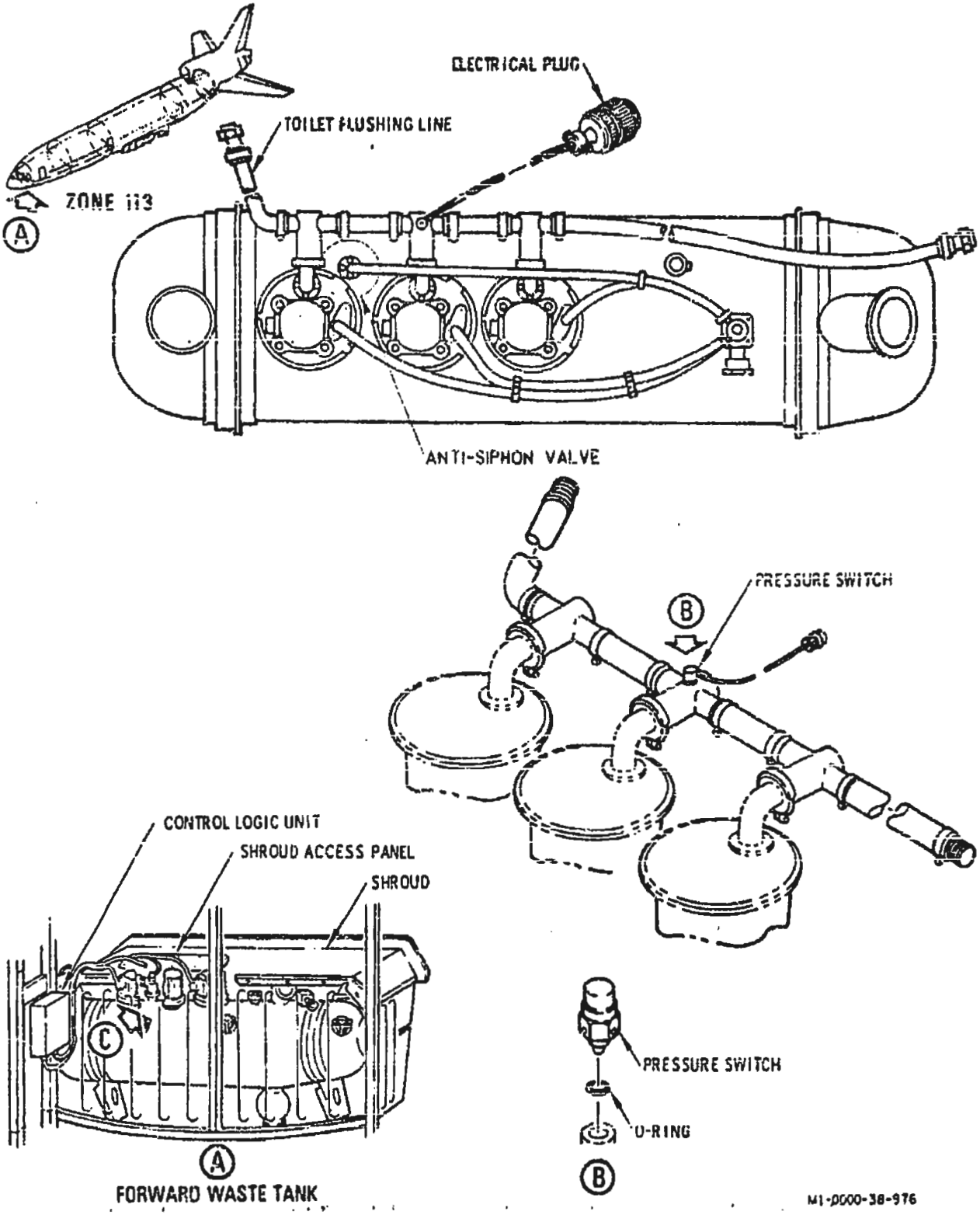




R Waste System Pressure Switch - Removal and Installation
R Figure 401

EFFECTIVITY: AIRCRAFT WITHOUT SB38-054

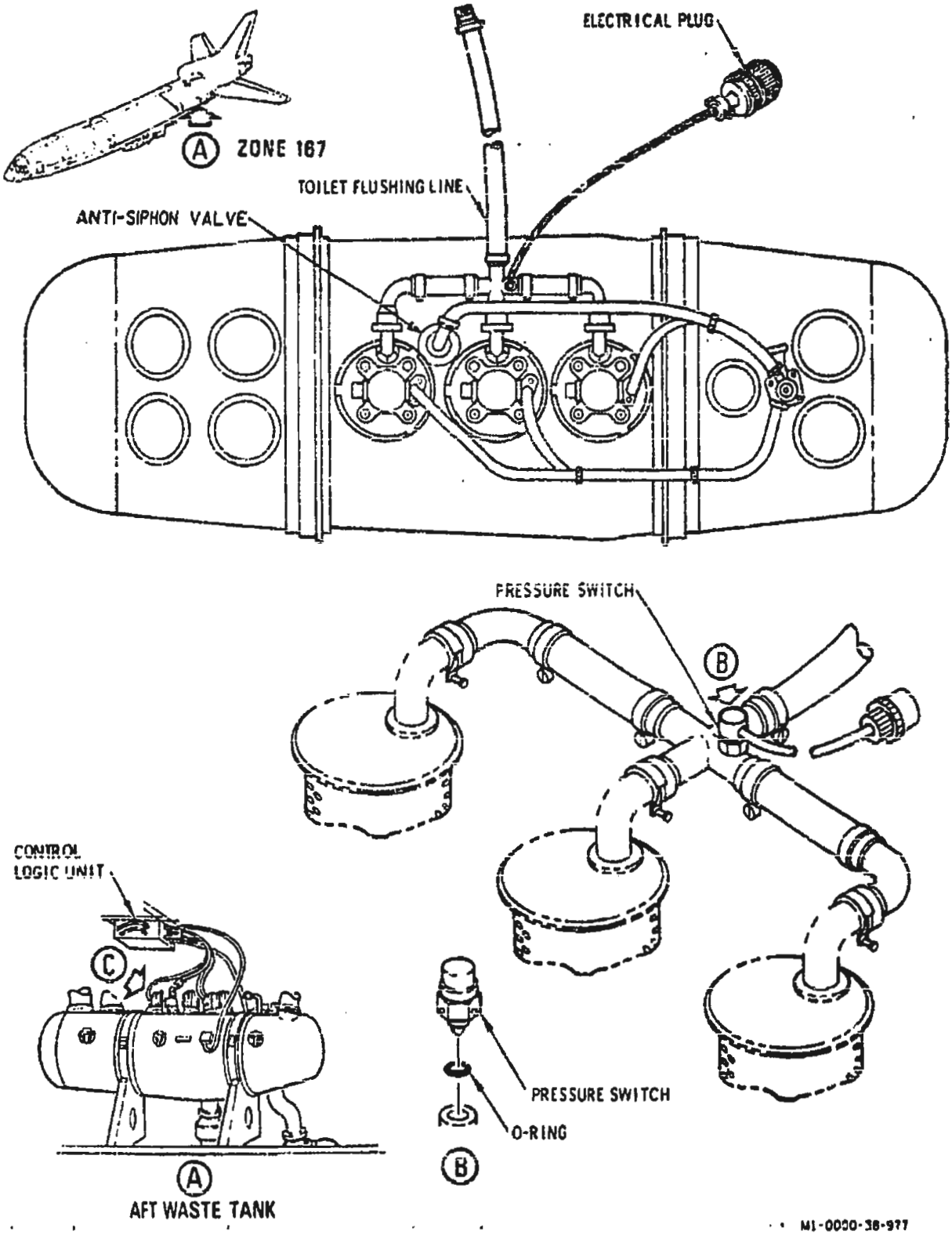
001B



CR Forward Waste System Pressure Switch - Removal and Installation
CR Figure 402

EFFECTIVITY: AIRCRAFT WITH SB38-054

001B



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CR Aft Waste System Pressure Switch - Removal and Installation
CR Figure 403

EFFECTIVITY: AIRCRAFT WITH SB38-054

001B

B. Installation

(1) Verify circuit breakers opened in Step 3A(1) or 3A(2) are open and tagged.

(2) Install O-ring and pressure switch to toilet flushing port fitting (Ref. Fig. 401). Safety with lock-wire.

(3) Connect pressure switch electrical plug to receptacle on control logic unit.

(4) For forward waste tank, reinstall waste tank shroud access panel and close access door 112AR.

(5) For aft waste tank, reinstall access panel removed in Step 3A(4).

(6) Remove tags and close circuit breakers opened in Step 3A(1) or 3A(2).

MANUAL 4-INCH BALL VALVE - REMOVAL AND INSTALLATION

1. General

R The removal and installation of the forward and aft waste tank manual 4-inch ball valves are the same except that the forward installation has a drain duct between the valve and the external drain cap assembly.

2. Equipment and Materials

O-rings (Ref. Fig. 401)

Cotter pins, MS 24665-149

3. Referenced Procedures

12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-Bolt V-Band Coupling - Removal and Installation
25-51-06	Cargo Compartment Liner Panels - Removal and Installation
30-71-12	Waste System Ball Valve Heater Blanket - Removal and Installation
30-71-13	Forward Waste System Drain Duct Heater Blanket - Removal and Installation
38-31-13	Manual 4-inch Ball Valve - Adjustment and Test
38-31-17	Waste Tank Drain Cap Assembly - Removal and Installation

4. Removal/Installation

A. Removal

(1) Drain and flush waste tank (Ref. 12-15-11).

(2) Open and tag the following circuit breakers:

(a) On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, FWD LAV FLUSH PUMP NO. 1 (B3), NO. 2 (B6), AND NO. 3 (B9).

(b) On galley right circuit breaker panel, zone 130, FLUSH PUMP AFT LAV 1 (B11), 2 (B8), and 3 (B5).

(3) Gain access to manual 4-inch ball valve as follows:

(a) Forward waste tank manual 4-inch ball valve: In forward electronic service center, zone 113, remove waste tank shroud (Ref. Fig. 401).

(b) Aft waste tank manual 4-inch ball valve: In aft cargo compartment, zone 167, remove aft bulkhead center panel (Ref. 25-51-06).

(4) Remove waste tank drain cap assembly (Ref. 38-31-17).

R (5) Remove cotter pin and flat head pin, connecting ball
R valve actuating rod to valve lever. Disconnect ball
R valve actuating rod.

R (6) Remove nuts (2) and bolts (2) attaching collar to ball
R valve housing, and remove collar.

R (7) Remove ball valve heater blanket (Ref. 30-71-12). If aft waste tank ball valve is being removed, loosen V-band clamps, top and bottom, and rotate valve to obtain clearance from cradle structure for heater blanket removal.

R (8) If forward waste tank ball valve is being removed, remove drain duct heater blanket (Ref. 30-71-13), and remove drain duct by removing V-band clamp assembly (Ref. 20-36-01), flared ring liner and O-ring. Discard O-ring.

CAUTION: SUPPORT BALL VALVE WHILE REMOVING V-BAND CLAMP ASSEMBLY.

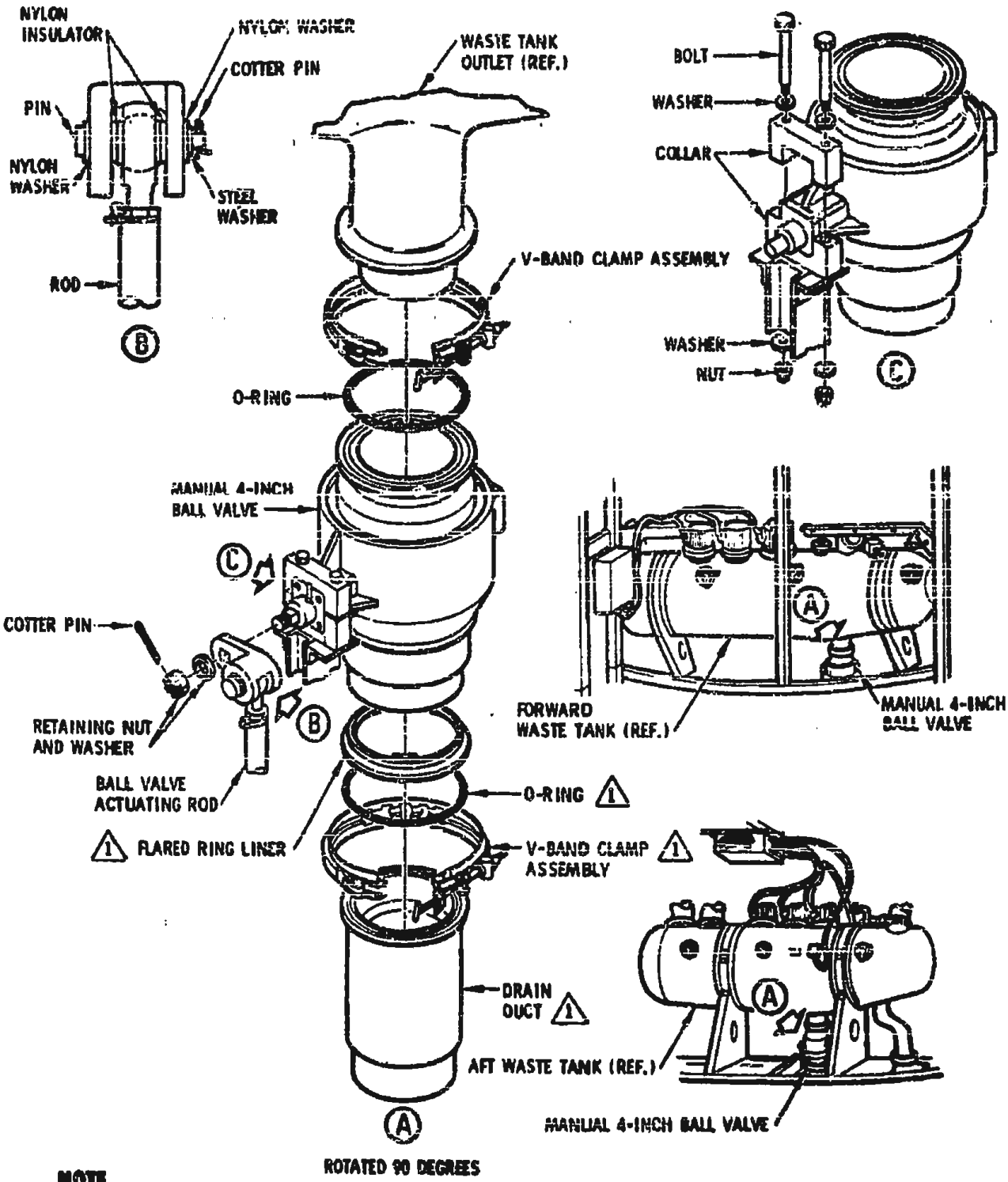
R (9) Remove V-band clamp assembly (Ref. 20-36-01) and O-ring connecting ball valve to waste tank, and remove ball valve. Discard O-ring.

B. Installation

(1) Verify that circuit breakers opened in Step 4A(2) are open and tagged.

(2) Verify that waste tank outlet is clean and unobstructed.

(3) Install manual 4-inch ball valve on waste tank outlet using V-band clamp assembly (Ref. 20-36-01) and new O-ring.



1 NOTE
FORWARD WASTE TANK ONLY

M1-0000-38-114

R Manual Ball Valve - Removal and Installation
R Figure 401

EFFECTIVITY: ALL

001B

(4) If forward waste tank ball valve is being installed, connect drain duct to ball valve outlet using V-band clamp assembly (Ref. 20-36-01), flared ring liner, and new O-ring. Do not tighten V-band clamp.

(5) Install waste tank drain cap assembly (Ref. 38-31-17).

R (6) On aft waste tank ball valve installation, rotate ball valve assembly as required to install heater blanket, then rotate into normal position.

R (7) Install collar (with two bolts and nuts), and secure R ball valve shaft to ball valve housing.

(8) Connectactuating rod to ball valve lever using flat head pin, nylon washers, insulators and steel washer, and secure with cotter pin.

(9) Disconnect rod at lower bellcrank and perform Manual 4-Inch Ball Valve - Adjustment and Test (Ref. 38-31-13).

(10) Service applicable waste tank with precharge fluid and check for any evidence of leakage (Ref. 12-15-11).

(11) Install waste system ball valve heater blanket (Ref. 30-71-12); install forward drain duct heater blanket (Ref. 30-71-13), if applicable.

(12) Reinstall forward waste tank shroud covers or aft bulkhead center panel (Ref. 25-51-06), removed in Step 4A(3), as applicable.

(13) Remove tags and close circuit breakers opened in Step 4A(2).

MANUAL 4-INCH BALL VALVE - ADJUSTMENT AND TEST

1. General

R The adjustment and test procedures for the forward and the aft ball valves are the same except the valves are installed with actuator levers and rods on opposite sides. The rods are different lengths. The ball valve operating levers are not interchangeable.

2. Equipment and Materials

Cotter pins, MS 24665-149

Spring Scale, 50-pound capacity

3. Referenced Procedures

12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-Bolt V-Band Coupling - Removal and Installation
25-51-06	Cargo Compartment Liner Panels - Removal and Installation
38-31-13	Manual 4-Inch Ball Valve - Removal and Installation

4. Adjustment/Test

A. Forward and Aft Manual 4-inch Ball Valve Operating Lever Adjustment

(1) Drain and flush waste tank (Ref. 12-15-11).

R (2) Open and tag following circuit breakers:

(a) On Flight Engineer/Second Officers overhead circuit breaker panel, CB2, zone 215, LAV - FWD LAV FLUSH PUMP NO. 1 (B3), NO. 2 (B6), and NO. 3 (B9).

(b) On galley right circuit breaker panel, zone 130, FLUSH PUMP AFT LAV 1 (B11), 2 (B8), and 3 (B5).

(3) Gain access to valve as follows:

(a) Forward waste tank: In forward electronic service center, zone 113, remove waste tank shroud (Ref. 38-31-13, Removal and Installation).

(b) Aft waste tank: In aft cargo compartment, zone 167, remove aft bulkhead center panel (161AL) (Ref. 25-51-06).

(4) Adjust rod length as follows (Ref. Fig. 501):

R (a) With valve installed, verify valve operating shaft is positioned parallel to lower bellcrank/drain handle shaft.

(b) Install upper lever and install cotter pin.

NOTE: Forward waste ball valve lever points aft; aft waste ball valve lever points forward.

(c) Attach one end of valve actuating rod to lower bellcrank.

(d) Verify ball valve is in CLOSED position, and drain valve handle at ground service panel is against stop (fully closed position).

(e) Adjust valve actuating rod to fit between lower bellcrank and upper lever with a 1/16-inch feeler gage clearance between shaft pin and ball valve body stop. Safety actuating rod jam nut with lockwire.

(f) Attach valve actuating rod to upper lever using flat head pin, nylon washers, insulators, and steel washer. Safety with cotter pin.

R (g) Cycle ball valve open and closed; verify there is no binding.

(h) Torque V-band clamps to 35-40 pound-inches (Ref. 20-36-01) if clamps were loosened for valve positioning.

(i) Ensure drain valve handle is against stop and recheck 1/16-inch clearance between shaft pin and valve body stop.

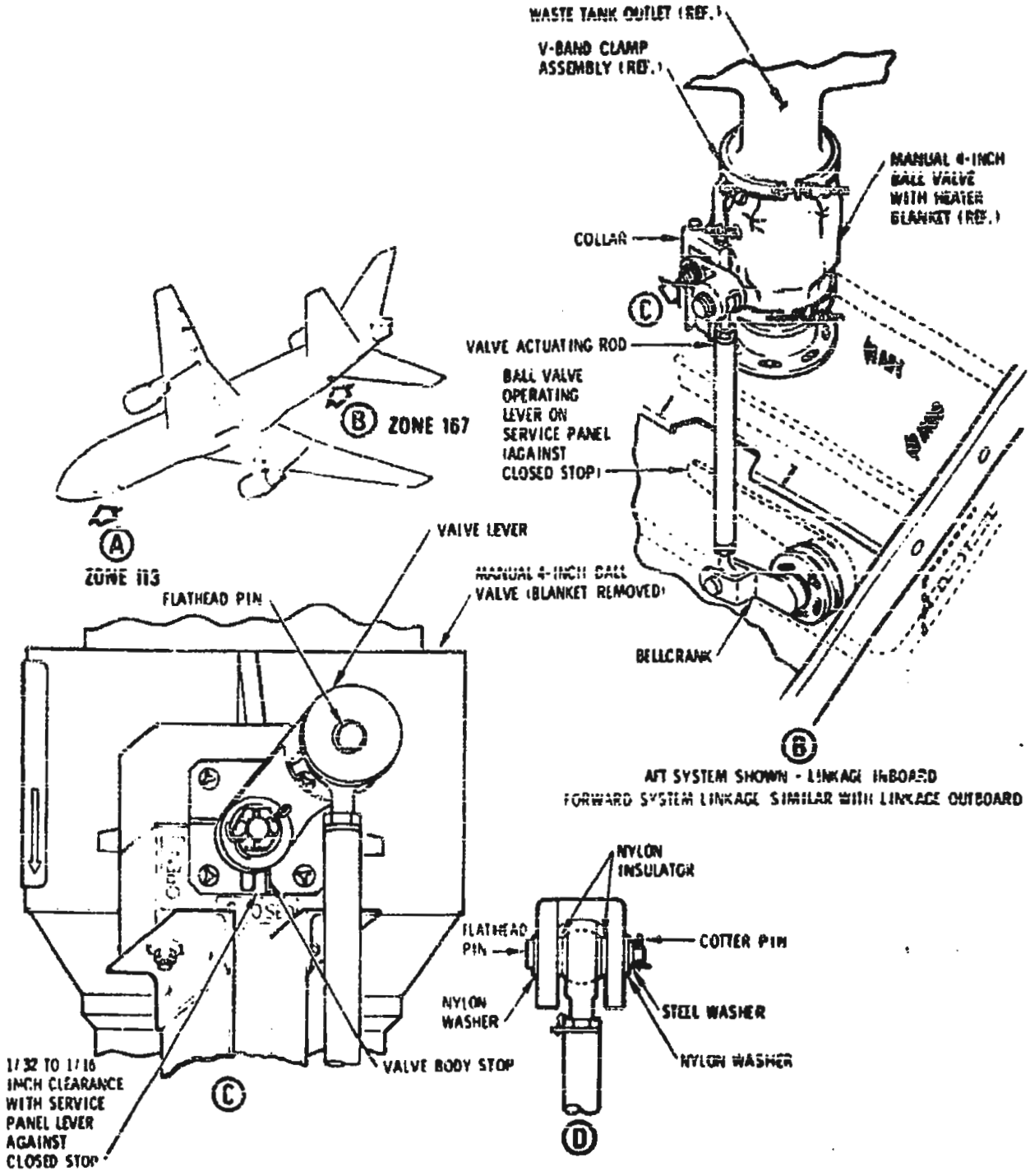
NOTE: Ground service panel drain handle must contact stop before valve shaft pin contacts valve body stop.

R (5) Cycle valve open and closed. Verify operating forces do not exceed 60 pound-inches (30 pounds force at middle of drain handle using a spring scale).

(6) Service waste tank with precharge fluid and check for leakage if V-band clamps were loosened (Ref. 12-15-11).

(7) Reinstall forward waste tank shroud or aft bulkhead center panel (Ref. 25-51-06), removed in Step 4A(3) as applicable.

(8) Remove tags and close circuit breakers opened in Step 4A(2).



M1-0101-38-315

Manual Ball Valve Adjustment
Figure 501

AFT WASTE SYSTEM CONTROL LOGIC UNIT - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps

2. Removal/Installation

A. Removal

R (1) On galley right circuit breaker panel, zone 130, open
R and tag circuit breakers FLUSH PUMP AFT LAV 1(B11), FLUSH PUMP AFT LAV 2(B8), and FLUSH PUMP AFT LAV 3(B5).

(2) Gain access to aft waste disposal system, zone 167, by removing aft bulkhead center panel, FS 1792, in aft cargo compartment.

(3) Disconnect electrical connectors from receptacles on control logic unit (Ref. Fig. 401).

NOTE: For identification purposes, tag each electrical connector.

(4) Install protective caps on all electrical connectors and receptacles.

(5) Support control logic unit and remove retaining bolts and washers.

(6) Remove control logic unit and logic box dripshield.

B. Installation

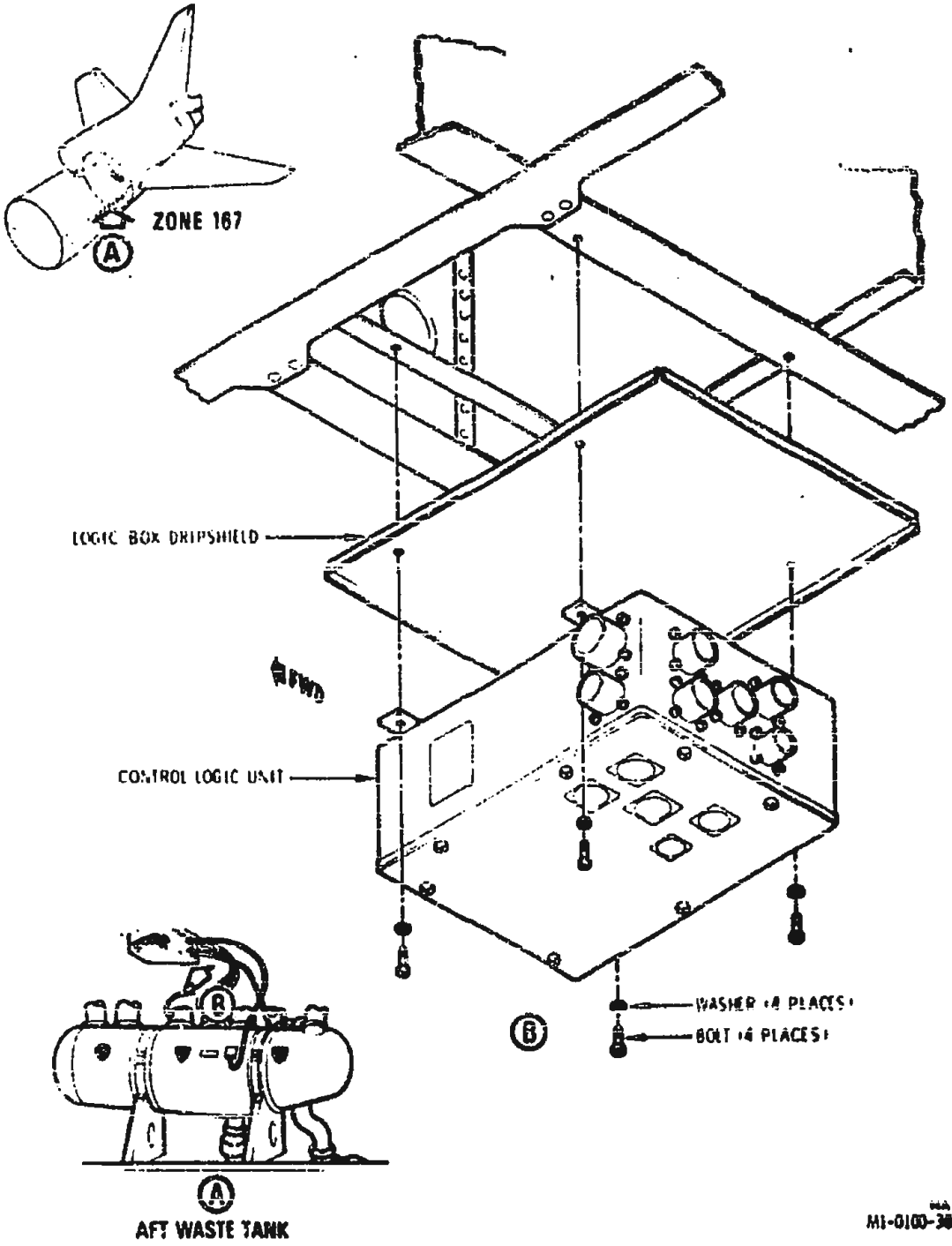
(1) Verify circuit breakers opened in Step 2A(1) are open and tagged.

(2) Using bolts and washers, attach control logic unit and dripshield to logic control box support and aircraft structure (Ref. Fig. 401).

(3) Remove protective caps and connect electrical connectors to receptacles on control logic unit.

(4) Reinstall aft bulkhead center panel.

(5) Remove tags and close circuit breakers opened in Step 2A(1).



R Aft Waste System Control Logic Unit - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

0508

WASTE TANK DRAIN CAP ASSEMBLY - REMOVAL AND INSTALLATION

1. General

The removal and installation of the forward and aft waste tank drain cap assemblies are the same except that the aft installation requires circular phenolic wedges to adapt the cap assembly to the slope of the panel mounting surface.

2. Equipment and Materials

O-ring (Ref. Fig. 401).

3. Referenced Procedures

12-15-11	Waste Disposal System - Servicing
20-36-01	Single T-Bolt V-Band Coupling - Removal and Installation
25-51-06	Cargo Compartment Liner Panels - Removal and Installation
30-71-18	Waste Tank Drain Nipple Heater - Removal and Installation

4. Removal/Installation

A. Removal

(1) Drain and flush waste tank (Ref. 12-15-11).

(2) Open and tag following circuit breakers:

(a) Forward waste tank drain cap assembly: On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1(B3), NO. 2(B)6, and NO. 3(B9).

(b) Aft drain cap assembly: On galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1(B11) 2(B8), and 3(B5). R

(c) On aircraft 001-031 with SB30-050, and 032-999, on galley right circuit breaker panel, zone 130, open and tag circuit breaker WASTE SYS HTR (A1).

(3) Gain access to inside components of waste tank drain cap assemblies as follows:

(a) Forward waste tank drain cap assembly: In forward electronic service center, zone 113, remove forward cover and end cover from waste tank shroud (Ref. Fig. 401).

(b) Aft waste tank drain cap assembly: In aft cargo compartment, zone 167, remove aft bulkhead center panel (Ref. 25-51-06).

(4) On aircraft 001-031 without SB30-050, remove drain nipple heater (Ref. 30-71-18).

R (5) Remove V-band clamp assembly (Ref. 20-36-01).

WARNING: ON AIRCRAFT 001-031 WITH SB30-050, AND 032-999, RECENT OPERATION OF AIRCRAFT HEATER SYSTEM WILL REQUIRE PRECAUTIONS AGAINST DANGEROUSLY HIGH COMPONENT TEMPERATURES. USE PROTECTIVE GLOVES WHEN NECESSARY.

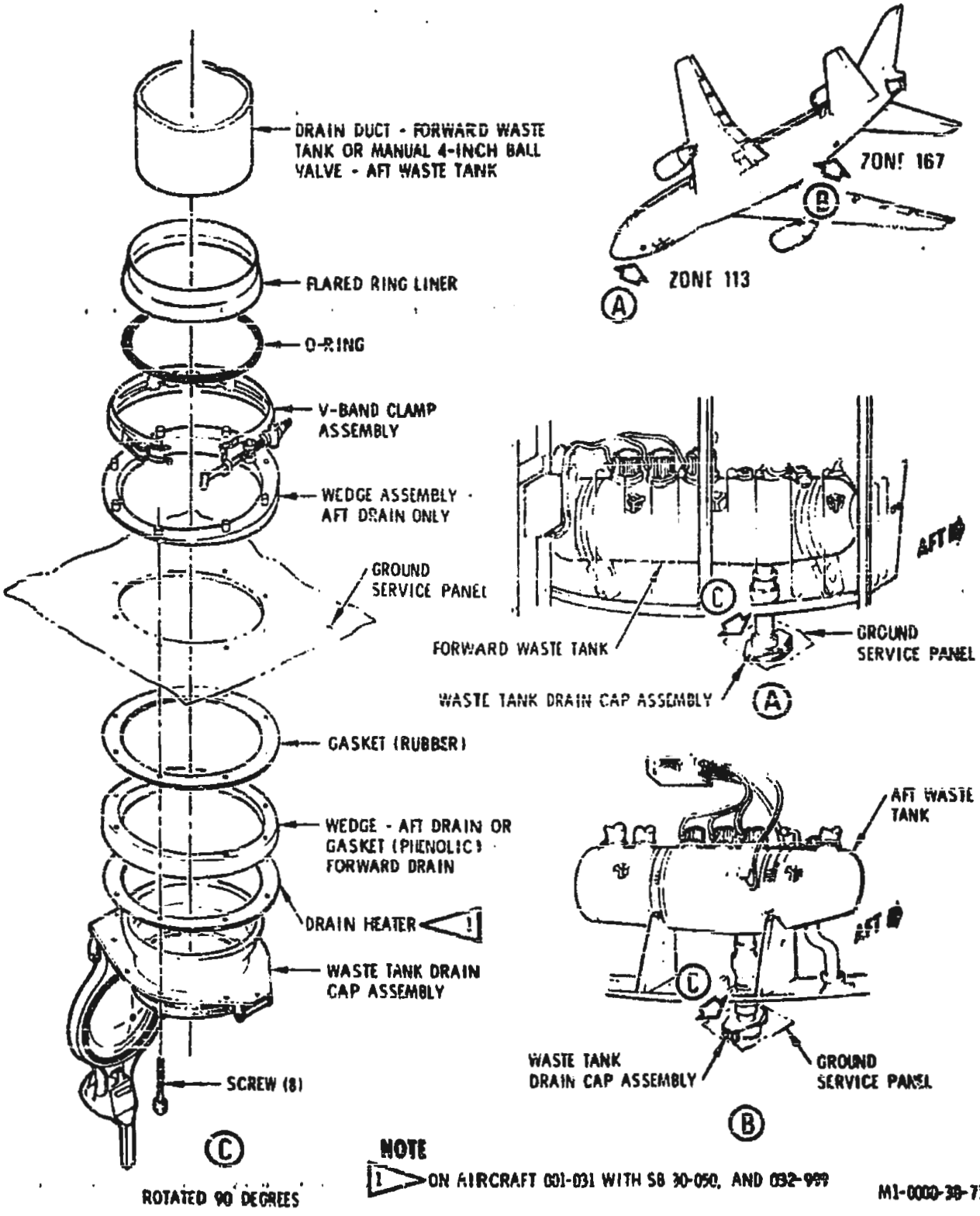
CAUTION: ON AIRCRAFT 001-031 WITH SB30-050, AND 032-999, SUPPORT DRAIN HEATER, RUBBER GASKET AND WEDGE OR GASKET, OR REMOVE HEATER (REF. 30-71-18) UNTIL NEW CAP ASSEMBLY IS INSTALLED.

(6) At applicable ground service panel, zone 113 or zone 167, remove drain cap assembly, drain heater (if installed), rubber gasket, and wedge (aft drain) or phenolic gasket (forward drain) by removing screws (8 places). On aircraft 001-031 with SB30-050, and 032-999, support drain heater, rubber gasket, and wedge or gasket until cap assembly is reinstalled or remove drain heater (Ref. 30-71-18). rubber gasket, and wedge (aft drain) or phenolic gasket (forward drain) by removing screws or remove drain heater (Ref. 30-71-18).

(7) Inside aircraft, remove wedge assembly (aft drain) O-ring, V-band clamp assembly, and flared ring liner. Discard O-ring.

B. Installation

(1) Verify circuit breakers opened in Step 4A(2) are open and tagged.



R R Waste Tank Drain Cap Assembly - Removal and Installation
Figure 401

EFFECTIVITY: ALL

001B

(2) Verify drain duct (forward waste tank) or manual 4-inch ball valve (aft waste tank) is clean and unobstructed.

(3) Position flared ring liner and V-band clamp assembly; on aft drain, also position wedge assembly.

CAUTION: ENSURE FORWARD DRAIN CAP ASSEMBLY IS INSTALLED WITH CAP HINGE AFT, AND AFT DRAIN CAP ASSEMBLY IS INSTALLED WITH CAP HINGE FORWARD. CAP PROJECTING TANG MUST LOCK DRAIN VALVE HANDLE WHEN CLOSED.

(4) At ground service panel, install drain cap assembly, drain heater (if installed), rubber gasket, and wedge (aft drain)or phenolic gasket (forward drain) with screws.

(5) Install V-band clamp assembly (Ref. 20-36-01), and new O-ring.

(6) Reinstall forward waste tank shroud covers or aft bulkhead center panel (Ref. 25-51-06), as applicable.

(7) Remove tags and close circuit breakers opened in Step 4A(2).

WASTE TANK FLUSHING NOZZLE - REMOVAL AND INSTALLATION

1. General

Except for access panels, the following removal and installation procedure is identical for the waste tank flushing nozzles installed on the forward and aft waste tanks.

2. Equipment and Materials

O-rings (Ref. Fig. 401)

3. Removal/Installation

A. Removal

(1) For forward waste tank: Open access door 112AB, enter forward electronic service center, zone 112, and proceed aft into zone 115. Remove forward waste tank shroud cover.

For aft waste tank: Remove center, left, and right aft bulkhead panels, FS 1792, in aft cargo compartment.

(2) Remove screws, lockwashers, and flat washers retaining nozzle cap to tank (Ref. Fig. 401).

(3) Lift nozzle cap and O-ring from tank.

(4) Remove nozzle and O-ring from tank.

B. Installation

R (1) Verify open port and internal passage are clean and unobstructed.

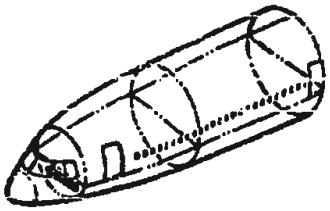
(2) Install O-ring on nozzle.

(3) Insert nozzle into tank.

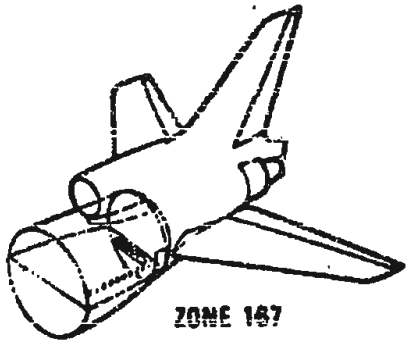
(4) Install O-ring on nozzle cap.

(5) Install nozzle cap on tank with screws, lockwashers, and flat washers.

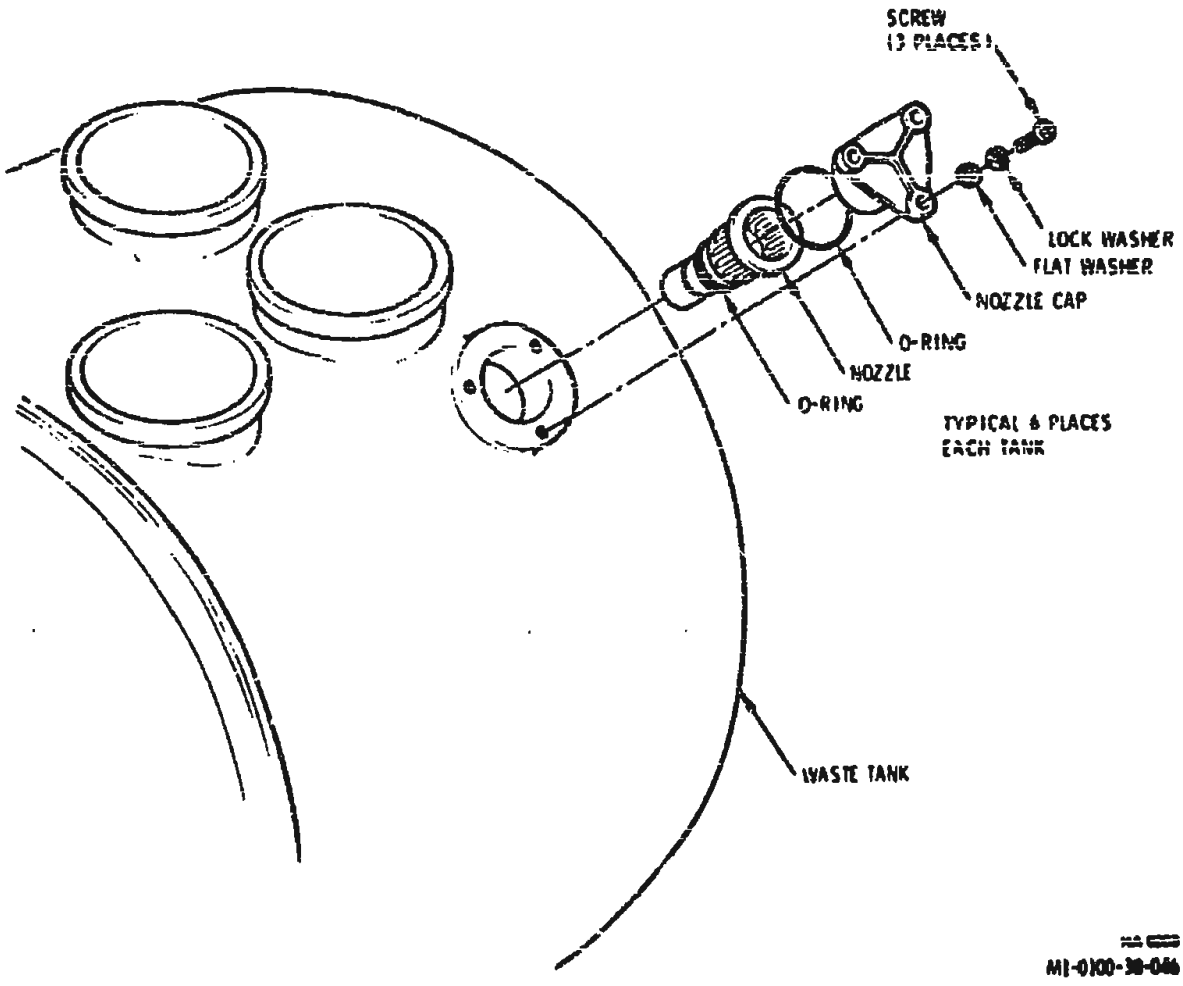
(6) For forward waste tank: Reinstall forward waste tank shroud cover, and close access door 112AB.



ZONE 113



ZONE 187



MI-0100-38-046

R Waste Tank Flushing Nozzle - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

R (7) For aft waste tank: Reinstall center, left, and right aft bulkhead panels.

R FORWARD WASTE SYSTEM CONTROL LOGIC UNIT - REMOVAL AND INSTALLATION

R 1. Equipment and Materials

R Protective Caps

R 2. Removal/Installation

R A. Removal

R (1) On Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1, NO. 2, and NO. 3.

R (2) Open access door 112AB to gain access to forward waste system control logic unit.

R (3) Disconnect electrical connectors from receptacles on control logic unit (Ref. Fig. 401).

R NOTE: For identification purposes, tag each electrical connector.

R (4) Install protective caps on all electrical connectors and receptacles.

R (5) Remove control logic unit by removing retaining screws.

R B. Installation

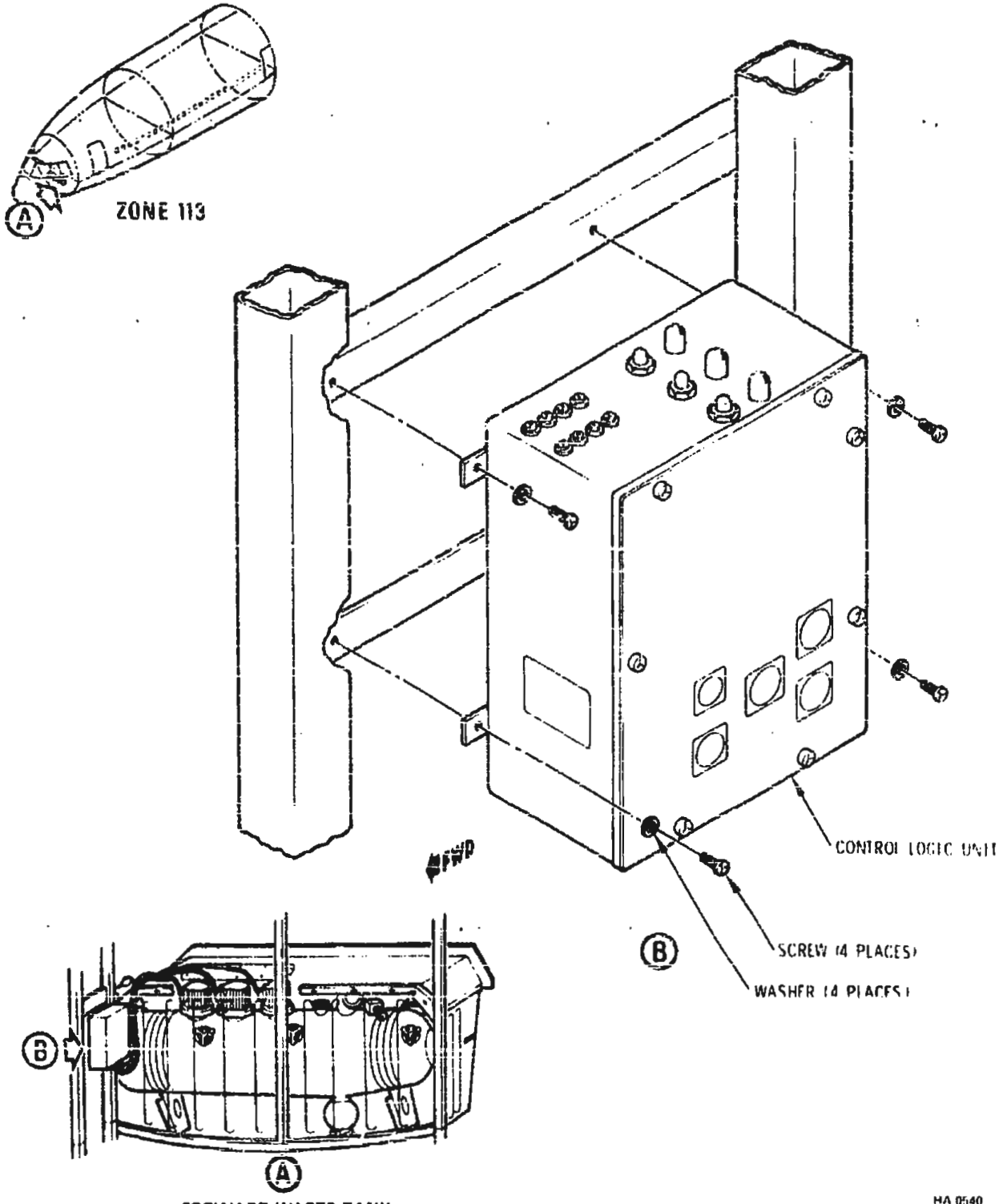
R (1) Verify that circuit breakers opened in Step 2A(1) are open and tagged.

R (2) Install control logic unit on angle brackets with attaching screws (Ref. Fig 401).

R (3) Remove protective caps and connect electrical connectors to receptacles.

R (4) Close access door 112AB.

R (5) Remove tags and close circuit breakers opened in Step 2A(1).



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R Forward Waste System Control Logic Unit - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

FORWARD AND AFT WASTE TANK AUTO AGITATION SYSTEM - REMOVAL AND INSTALLATION

1. General

The removal and installation procedure is identical for both forward and aft waste tank auto agitation system, except for the waste tank location.

2. Equipment and Materials

Caps and covers,

Silicone Grease, PNDC33, Dow Corning, or equivalent

3. Reference Procedure

12-15-11 Waste Disposal System - Servicing

38-31-00 Waste Disposal System - Description and Operation

4. Removal/Installation

A. Removal

(1) Gain access to forward or aft waste system ground service panel zone 113, and zone 167 respectively.

(2) Drain and flush waste tank (Ref. 12-15-11).

NOTE: Do not PRECHARGE at this time.

(3) Open and tag following circuit breakers:

(a) On Flight Engineer/Second Officers overhead circuit breaker panel CB2;

FWD LAV FLUSH PUMP NO. 1 (B3)

FWD LAV FLUSH PUMP NO. 2 (B6)

FWD LAV FLUSH PUMP NO. 3 (B9)

(b) On galley right circuit breaker panel;

FLUSH PUMP AFT LAV 1 (B11)

FLUSH PUMP AFT LAV 2 (B8)

FLUSH PUMP AFT LAV 3 (B5)

(4) Gain access to Forward Electronic Service Center or aft cargo compartment, and locate waste tank.

(5) Locate agitation system on right side of waste tank (Ref. Fig. 401).

(6) Loosen nut connecting nozzle assembly to flush line tee fitting and remove tube assembly.

(7) Remove retaining ring.

(8) Remove agitation system nozzle assembly from waste tank.

(9) Remove and discard O-ring.

B. Installation

(1) Verify circuit breakers are opened and tagged in Step 4A(3).

(2) Gain access to Forward Electronic Service Center or aft cargo compartment, and locate waste tank.

(3) Grease and install O-Ring on nozzle assembly.

(4) Install nozzle assembly in waste tank.

(5) Install retaining ring.

(6) Tighten tube assembly nut with tee fitting on flush line.

(7) Gain access to ground service panel zone 113 for forward waste system and zone 167 for aft waste system.

(8) Precharge waste tank (Ref. 12-15-11).

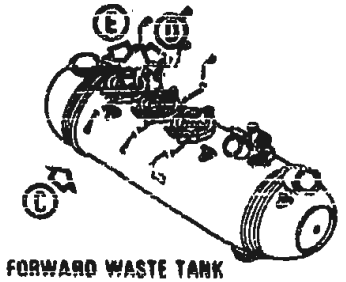
(9) Close circuit breakers opened in Step 4A(3).

(10) Check agitation system operation by positioning ground service panel light switch to "ON" position, a flush cycle should begin (Ref. 38-31-00).

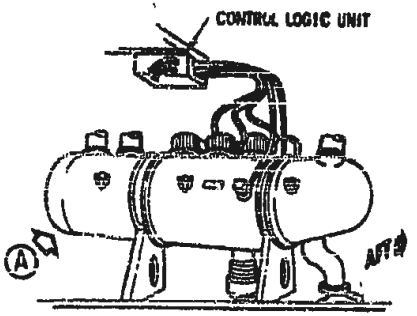
(11) Close ground service panel door.

(12) Gain access to applicable waste tank.

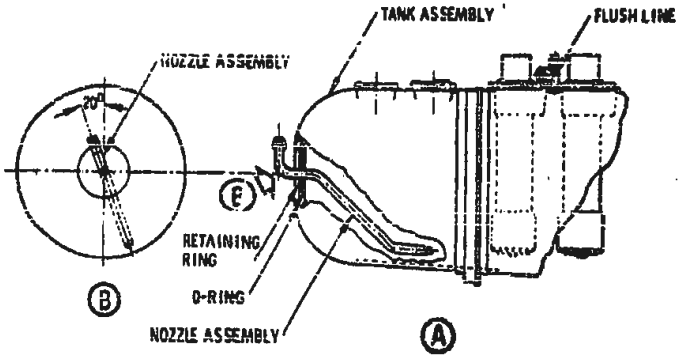
(13) Check waste tank for leakage around agitation system nozzle.



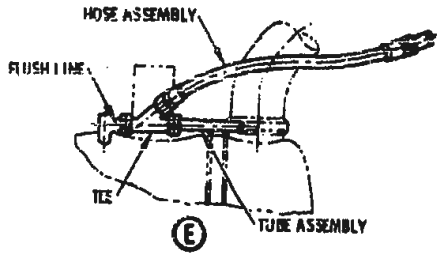
FORWARD WASTE TANK
ZONE 113, FS 307



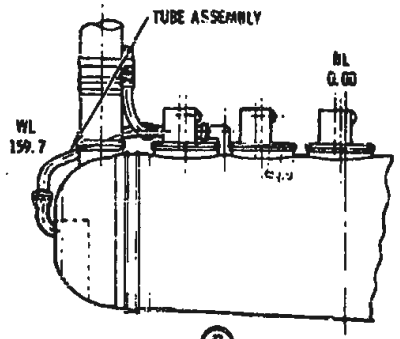
AFT WASTE TANK
ZONE 157 FS 1806
IN AFT CARGO COMPARTMENT



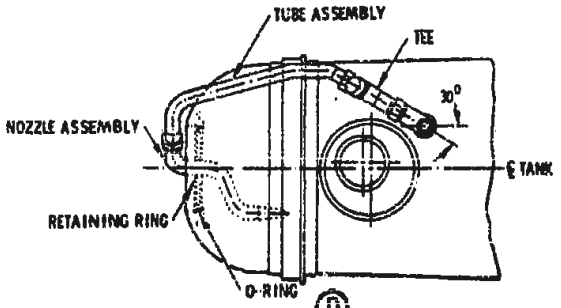
VIEW LOOKING AFT



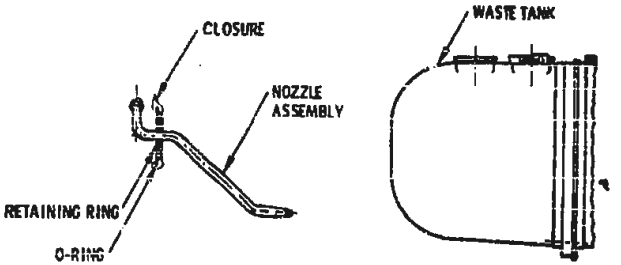
VIEW LOOKING FORWARD



VIEW LOOKING AFT



TOP VIEW



VIEW SHOWING
AGITATION NOZZLE REMOVED

MIL-0000-38-585

Forward And Aft Waste Tank Auto Agitation System Removal and Installation
Figure 401

R
R
001B

EFFECTIVITY: 001-031 WITH SB38-032 AND 032-999, OR AIRCRAFT WITHOUT SB38-054 AND SB38-055

CR

WASTE TANK - CLEANING/PAINTING

CR 1. Equipment and Materials

CR High Pressure Water Hose

CR 2. Reference Procedures

CR 12-15-11 Waste Disposal System Servicing

CR 38-31-06 Waste Tank Pump Motor-Removal and Installation.

CR 3. Clean Forward and Aft Waste Tank

CR A. For forward waste tank: on Flight Engineer/Second Officers overhead circuit breaker panel CB2, zone 215, open and tag circuit breakers FWD LAV FLUSH PUMP NO. 1, NO. 2, and NO. 3.

CR B. For aft waste tank: on galley right circuit breaker panel, zone 130, open and tag circuit breakers FLUSH PUMP AFT LAV 1, 2 and 3.

CR C. Drain waste tank and leave lavatory servicing truck connected with drain valve open. Do not pre-charge. Reference 12-15-11.

CR D. For forward waste tank access, open access door 112AB and enter forward electronic service center, zone 112. Proceed aft into zone 113. Remove access panel from top of forward waste tank shroud.

CR E. Gain access to aft waste tank, zone 167, by removing aft bulkhead center panel in aft cargo compartment (FS 1792).

CR F. Remove and clean center flush pump. Retain pump for re-installation. Reference 38-31-06.

CR G. Using high pressure water hose, thoroughly clean the interior of the tank. Assure that all waste material is removed and the interior walls of tank are clean.

CR H. Re-install flush pump. Reference 38-31-06.

CR I. For forward waste tank, re-install waste tank shroud access panel and close door 112AB.

CR J. For aft waste tank, re-install access panel removed in Step E.

CR CR K. Service the lavatory tank to the proper level. Reference 12-15-11.

CR CR L. Remove tags and close circuit breakers opened in Step A or B.

WATER DRAIN SYSTEM - DESCRIPTION AND OPERATION

1. General

The water drain system provides the means of disposing of waste water from the facilities using the potable water system. Drains are also provided for the drip pans of the galley lifts.

The system provides all the components, drain lines, and plumbing fittings used to route waste water overboard (Ref. Fig. 1).

2. Operation

Waste water from the potable water system is drained overboard through the two drain mast assemblies.

The potable water tank and system supply lines are drained by pulling the remote control handle, which connects to the drain valve, to the OPEN position.

After the tank is drained, the handle is pushed to the CLOSED position and held in place by a detent. All components, lines, and fittings not in heated areas, have provisions to prevent
R freezing whenever aircraft is powered and the relevant circuit
R breakers are closed. Aircraft parked for a prolonged time in
R subfreezing weather with no power applied should have the
R potable water system drained to prevent possible damage by the
R formation. Instructions for draining potable water is contained
R in 38-11-00.

3. Forward Lavatories Washbasin and Sinktop

A. Description

The washbasin sinktop assemblies in each of the two forward lavatories are identical except that one is a left-hand unit and the other is a right-hand unit.

Each unit is an integral assembly and includes the sinktop, washbasin bowl, ash receptacle box, and insulation. All metal parts are stainless steel. The front of the sinktop and the openings for the washbasin bowl and the ash receptacle box have flush-rolled edges. An integral splash panel extends across the back of the sinktop. Polyurethane foam insulation is bonded between the upper and lower metal surfaces of the sinktop. Clearance is provided to allow

installation of the faucet assembly and the liquid soap dispenser.

4. Aft_Lavatories_Washbasin_and_Sinktop

A. Description

A washbasin and sinktop assembly is installed in each of the five aft lavatories. These units are similar to a forward lavatory washbasin and sinktop (Ref. Para. 3.), and differ only in size and shape. Each of the five units is interchangeable.

5. Waste_Water_Drain_Mast_Assembly

A. Description

The mid and aft drain mast assemblies are installed on the bottom surface of the fuselage to drain water overboard (Ref. Fig. 1). The masts are shaped and located to preclude impingement of waste water on the fuselage and flight surfaces.

Each drain mast consists of an aerodynamic body, an internal tube with fitting, a gasket seal, and an electrical heater assembly.

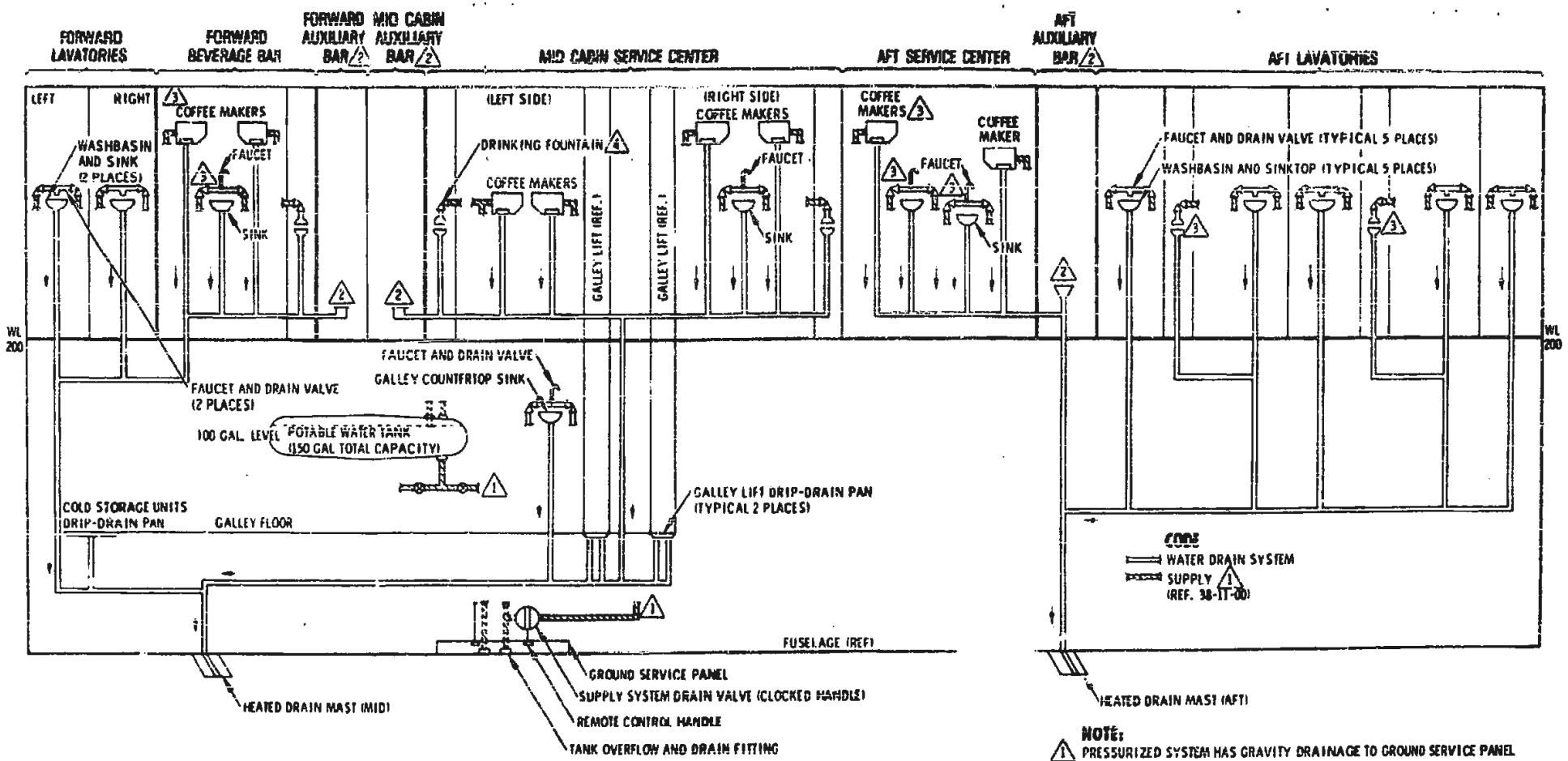
The metal components of the drain mast are made of corrosion resistant steel. The body has a flange that is shaped to match the contour of the fuselage at its respective location. The fitting on the internal tube attaches to the drain line. The gasket seals the joint between the mast and fuselage.

The electrical heater assembly includes a main heating element and a backup heating element to prevent icing of the drain exit (Ref. 30-71-00).

6. Galley_Sink_Countertop

A. Description

The galley sink countertop is located at the aft left side of the galley. The countertop consists of a stainless steel sink with overflow and drain provisions, soap dish, insulation, and mounting provisions for a spigot assembly. The galley sink countertop is made of stainless steel. Polyurethane foam insulation is bonded to the under surface of the countertop.



NOTE:

1. PRESSURIZED SYSTEM HAS GRAVITY DRAINAGE TO GROUND SERVICE PANEL
2. ON AIRCRAFT 032-999, PROVISIONS MADE AND CAPPED FOR AUXILIARY BAR
3. ON AIRCRAFT 032-999
4. ON AIRCRAFT 001-031, THREE DRINKING FOUNTAINS. ON AIRCRAFT 032-999, FIVE DRINKING FOUNTAINS

M1-(201)-38-966

Water Drain System
Figure 1

R
R
0018

EFFECTIVITY: ALL

7. Mid_Service_Center_Sink

A. Description

The mid service center sink is located on the right side of the mid cabin service center. The assembly includes the sink, screen, clip, and a screen retainer magnet.

The sink is made of stainless steel. Back of the splash panel is a flat horizontal surface. Mounting holes for a faucet assembly are centered on this area. A magnet is bonded at the center on the underside of the sloping surface of the sink indentation. The front and rear vertical surfaces of the sink indentation each have two integrally formed screen supports. The vertical surface on each side also has a screen support.

The screen is a flat, corrosion-resistant steel sheet with small holes to allow unrestricted passage of liquid. A metal clip, bonded to the center of the underside of the screen, aligns with the magnet in the sink and holds the screen in place under flight loads. A cutout on the forward edge is provided to remove the screen from the sink. A three-pound pry load under this cutout is required to overcome the restraining force of the magnet.

8. Potable_Water_System_Drain_Valve

A. Description and Operation

The drain valve is installed on the inner surface of the potable water system ground service panel, zone 136. The valve handle extends down through the panel.

The drain valve assembly consists of the body, rotating plug, actuation mechanism, and seals. All metal parts except for the handle are made of corrosion-resistant steel. The handle is a machined aluminum casting. The internal plastic and elastomer parts are compatible with chlorinated water.

The body has two in-line ports. The ports are identified as INLET and OUTLET. The ports are parallel to the mounting surface. The system drain line is connected to the inlet port. A short drain line connects the outlet port to a T-fitting on the tank overflow and drain line. The T-fitting is just above the ground service panel. The rotating plug is a solid shaft with a crosswise drilled passage. Packing grooves are provided above and below the passage to prevent leakage.

The actuating mechanism consists of a handle, a shaft, a detent plate, and a driver. The inner end of the shaft is a combined four-lobe lift cam and detent that mates with the detent plate on the rotating plug. The outer end of the rod extends through the mounting face on the body. The handle is indexed to a flat on the shaft and attached to the shaft with a screw. Positive stops are provided at full open and full closed positions. An OPEN or CLOSED directional arrow is permanently marked on the handle.

The valve will operate with an inlet pressure of 0 to 45 psig. The rated drain flow is 13.6 gallons per minute with a head of 33 inches of water. The maximum handle torque required to open or close the valve is 18 pound-inches with system pressure between 0 and 45 psig.

9. Drain Line Quick Disconnect Fitting Half

A. Description and Operation

A quick disconnect fitting connects the drain line of each coffee maker to a drain line of the water drain system. A complete fitting consists of two mating half fittings. One of the half fittings is an integral part of the coffee maker assembly. This mating half fitting is the upper terminus of a coffee maker drain line. A separate drain line is provided for each of the coffee maker (Ref. Fig. 1). No tools are required to mate the half fittings. The drain fitting opens when the fittings are mated, and automatically closes when the coffee maker is disconnected.

POTABLE WATER SYSTEM DRAIN VALVE - REMOVAL AND INSTALLATION

1. Equipment and Materials

   Protective caps and plugs

2. Removal/Installation

   A. Removal

      (1) Remove galley floor panel 136ET, and then remove panel below panel 136ET.

      (2) Close and tag aft shutoff valve below potable water tank to stop flow of water to drain valve. Gain access to shutoff valve as follows:

R   (a) In left side compartment of galley, zone 133, remove serving carts stowed inboard of galley left vertical side panels.

         (b) Open FORWARD AND AFT SYSTEM SHUTOFF VALVES POTABLE WATER SYSTEM access door in center vertical side panel.

      (3) At ground service panel, inside access door 192F, attach drain hose to drain fitting. Move control handle of drain valve to OPEN to drain water system plumbing lines. Prepare to catch runoff in containers. Do not drain potable water tank.

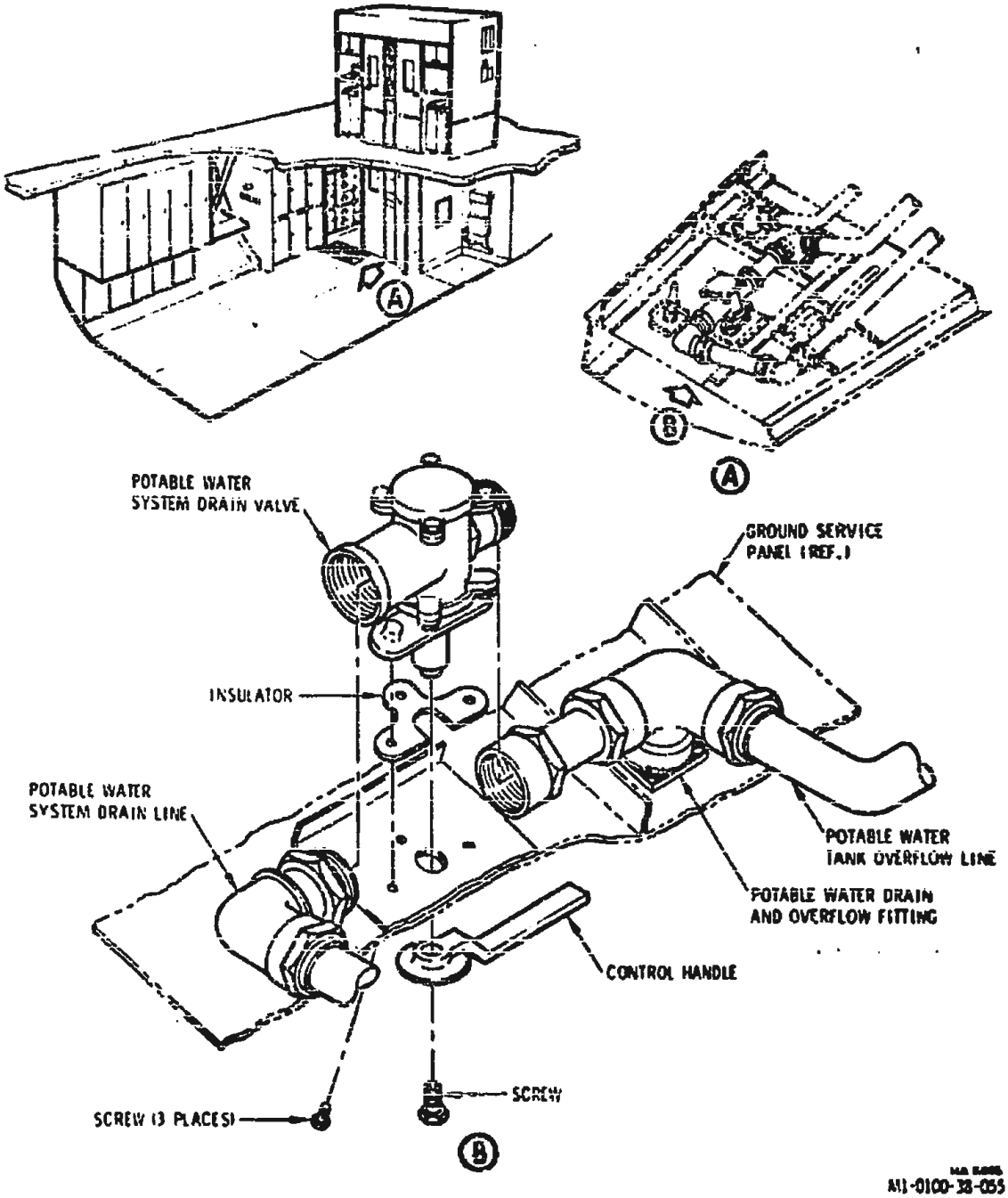
      (4) Remove control handle from valve by removing screw. Remove screws holding valve to ground service panel (Ref. Fig. 401).

R
R   (5) Loosen fittings and disconnect plumbing lines from drain valve through access opening in galley floor. Remove drain valve and install protective caps and plugs. Retain insulator for re-use.

      (6) Remove drain hose from ground service panel fitting.

   B. Installation

      (1) Insert drain valve with insulator in ground service panel through access opening in galley floor (Ref. Fig. 401).



R Potable Water System Drain Valve - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL

NOTE: Install new insulator if removed insulator is damaged or defective.

(2) At ground service panel, install valve attachment screws, and attach control handle using screw. Engage control handle detent in valve shaft notch.

(3) Remove protective caps and plugs and connect plumbing lines to drain valve.

(4) Move valve control handle to CLOSE.

(5) Open shutoff valve below potable water tank, zone 133. Remove tag and close access door.

(6) Reinstall panels in galley floor.

AIR SUPPLY SYSTEM - DESCRIPTION AND OPERATION

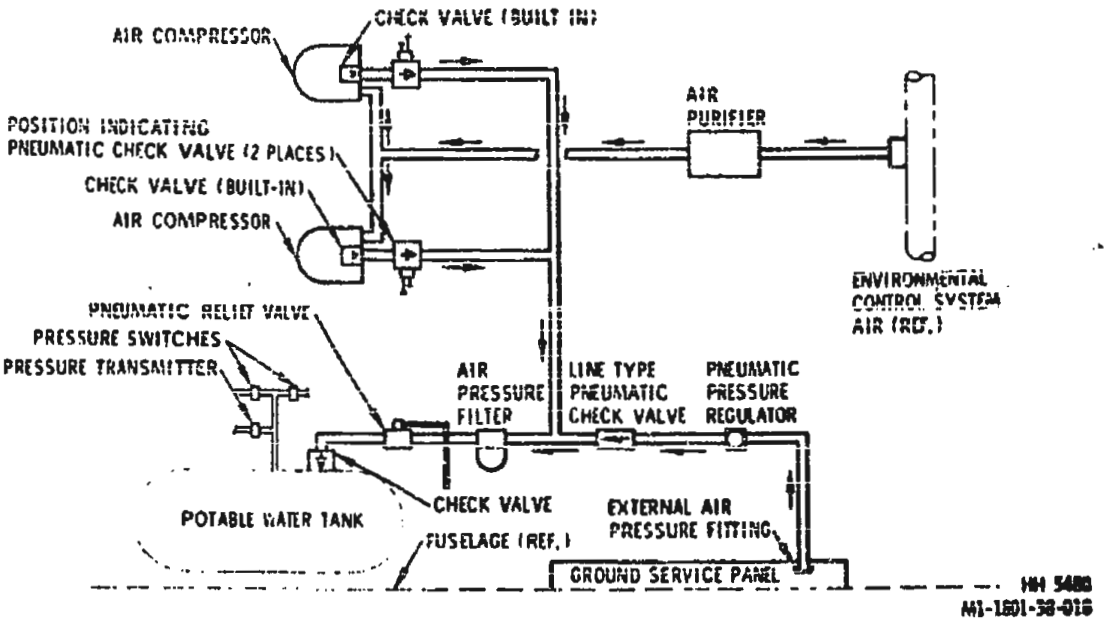
1. General

The potable water system is pneumatically pressurized. The air must be pressurized, purified and supplied in sufficient volume to maintain system operating pressure.

The air supply system includes the components required to pressurize, filter, monitor, and control the pressure in the potable water system. The system is pressurized mechanically. The pressure is sensed, indicated, and controlled electrically. The mechanical components of the air supply system are shown in Figure 1.

R The electrical components of the air supply system are shown in
R 38-41-00,101 SCHEM 1.

The single push-pull dc circuit breaker and the two 3-gang push-pull ac circuit breakers are installed on the galley circuit breaker panel, zone 131. The two power relays are installed in the mid electrical service center, zone 137.



Air Supply System Functional Schematic
Figure 1

2. Operation

The system can be pressurized from a ground pressure source. Air pressure is supplied through the external air pressure fitting on the potable water ground service panel, zone 136. The air is routed through the regulator, check valve, filter, past the relief valve and into the potable water tank. In flight, the system is pressurized by the air compressors. Air is supplied to the compressors from an environmental control system duct in the galley compartment.

When the aircraft is on the ground the auxiliary power unit (APU) is generally used for aircraft electrical power. The potable water air supply system uses this power to maintain a normal system operating pressure of 30 to 35 psig.

In flight and on the ground, 28V dc power from the dc ground service bus extension circuit breaker is supplied to the pneumatic pressure switches. The pressure switches open when tank pressure is 55 (±1) psig or greater. When system air pressure drops to 30 (±1) psig the switches close and energize the power relay coils. The closed relay contacts complete the circuit from the three-phase ac power to the compressor motors. The compressors operate until the pressure in the water system opens the pressure switches. This action deenergizes the power relay coil and opens the circuit to the compressor motors. The
R compressor failure indicating system monitors air compressor operation. Failure of a compressor is indicated by a panel light at the Flight Engineer/Second Officers station. The service panel switch operates the potable water system ground service panel light.

3. Air Pressure Filter

A. Description

The air pressure filter assembly includes a housing assembly and a woven stainless steel wire mesh filter. The housing is made of anodized aluminum.

C The filter assembly is installed in the left side
C compartment of the galley, zone 133. In-line ports,
C identified as INLET and OUTLET, are located on opposite
C sides of the housing. Two mounting holes are provided. The
C filter assembly is secured to the structure with bolts. The lower portion of the filter housing is a hollow cylinder with one closed end. A stainless steel filter element is placed in the cylinder. The cylinder is hand tightened to the upper housing. A knurled band provides a hand grip.

The stainless steel wire mesh filter element removes 98 percent of the particles exceeding 10 microns nominal (25 microns absolute) from the pressurizing air. The flow rate of the filter assembly, 26 scfm nominal system pressure [35 psig] at 65(±5) degrees F inlet air temperature and with a clean filter, will have a pressure drop of 3 psig. A pressure drop of 5 psig will result when the filter element is 80 percent full.

C NOTE: The differential pressure indicator is being deleted.

4. Pneumatic Pressure Regulator Valve

A. Description and Operation

The pneumatic pressure regulator valve serves two purposes. The primary function is to reduce and regulate the air pressure supplied from a ground source when pressurizing the potable water system. The secondary function is to protect the system against overpressurization due to failure or malfunction of the regulator.

The regulator is installed in the tank ground pressure supply line in the area below the galley compartment, zone 136. The valve components are corrosion resistant. The ports are designated IN and OUT.

The regulator pressure range is 150 to 3000 psig. The inlet pressure is reduced to maintain system pressure at 30 (±5) psig. The flow rate is 26 standard cubic feet per minute (scfm) at regulated pressure. The regulator locks up (stops flow) at the maximum regulated pressure. The relief valve cracking pressure is adjusted at 40 (+5-0) psig. The maximum cracking pressure flow rate is 100 cubic centimeter per minute (CCM). With the relief valve fully open (45 psig maximum), the air is exhausted to atmosphere at a flow rate of 4 scfm.

5. External Air Pressure Fitting

A. Description and Operation

An external air pressure fitting is provided for a ground source air line to pressurize the potable water system. The fitting is located on the ground service panel, zone 136.

The ground source air hose is attached to the male threaded end of the fitting. The fitting is similar to a check valve. The air flows freely into the system but reverse flow is blocked.

6. Pneumatic Relief Valve

A. Description

The pneumatic relief valve limits the system air pressure. It is installed in the air pressure line between the potable water tank and the air filter in the left side compartment of the galley, zone 133.

The valve has standard male fittings and an integral wrench hex on each end. A flow direction arrow is provided on the outer surface of the valve body.

The full-flow rate of the valve is 26 standard cubic feet per minute (scfm) at 45 psig. The minimum cracking pressure
CR is 45 psig. The maximum flow rate at cracking pressure is 100 cubic centimeters per minute (ccm). The maximum relief
CR pressure is 56 psig, and the minimum reseat pressure is 38 psig.

7. Air Compressor

A. Description

There are two identical air compressors located in the left side of the compartment of the galley, zone 133. The compressors are controlled by the air supply system pneumatic pressure switches (Ref. Para. 8).

The compressor assembly includes a housing with a mounting base and an integral motor. Two ports, designated INLET and OUTLET, are located on one end of the housing. An integral position indicating pneumatic check valve is included in the outlet port. All circuits terminate in an integral, 7-pin receptacle. The receptacle is on the housing below the ports.

The rated flow of the compressor is 1.0 standard cubic foot per minute (scfm) at 45 psia. The compressor assembly operates at a minimum inlet air pressure of 11 psia at ambient galley air temperature (60 to 90 degrees F). The maximum extreme operating temperatures are -40 to +130 degrees F. The compressor motor requires 115/200V ac, 400 Hz, 3-phase power.

8. Pneumatic Pressure Switch

A. Description and Operation

Two pneumatic pressure switches are located in the plumbing next to the potable water tank in the left side compartment of the galley, zone 133. The switches control the pressure in the potable water system.

The pressure switch assembly includes a body, switch mechanism, standard male fitting, and a 5-pin receptacle. The receptacle is sealed at one end and a port for the fitting is at the other end. Integral hex wrench flats are machined on each end. The switch mechanism is a SPDT type actuated by a diaphragm. The plumbing fitting (union) is installed in the open port.

R The pressure switch actuates to the open position (with
R increasing pressure) at 40 psig to shutoff the associated
R compressor, and closes (with decreasing pressure) at 35 psig to turn on the associated compressor. All circuits terminate in the receptacle. A safety ground wire in the connector is bonded to the body. The diaphragm can withstand a proof pressure of 45 psig without permanent set, excessive distortion, or external leakage. The switch contacts are rated at a minimum of 2.0 amperes resistive, and/or 1 ampere inductive at 28V dc.

9. Air Purifier

A. Description and Operation

An air purifier is provided in the air supply system. The purifier cleanses the air used to pressurize the potable water system before entering the air compressor.

The disposable purifier removes tobacco smoke and cooking odors, hydraulic fluid fumes, water vapor, sand, and dust. Flow rate through the purifier is 1 standard cubic foot per minute (scfm) at 10 psia. The maximum pressure drop across a clean element is two inches of water. The purifier operates in ambient air temperatures between 40 and 140 degrees F.

10. Line Type Pneumatic Check Valves

A. Description and Operation

There are two line-type pneumatic check valves in the air supply system. One is installed on the top aft end of the water tank; the other is installed in the ground-air supply line between the air fitting on the ground service panel and the water tank. The two valves are located in the left side compartment of the galley, zone 133.

Each valve consists of a body, a spring-loaded gate, a seal, and a union. Valve components are made of corrosion-resistant materials. A flow direction arrow is included on the outer cylindrical surface of the body. The flapper-type spring-loaded gate is a flat plate. Flow in the forward direction opens the gate against the spring. Spring force and reverse pressure force the gate against the seal and prevent reverse flow through the valve.

The normal operating pressure for the valves is 35 psig. However, the valves will withstand a proof pressure of 70 psig without permanent set, excessive distortion, or external leakage. The rated flow in the forward direction for the tank mounted check valve is 1.0 standard cubic foot per minute (scfm), and for the check valve installed in the air supply line, 26 standard cubic feet per minute (scfm) at 35 psig. Reverse flow is prevented by an integral restrictor in the outlet port of the position indicating check valve. The maximum cracking pressure for both valves in 1.0 psig.

11. Service Panel Switch

A. Description

The single-pole-double-throw (SPDT) service panel switch has a sealed toggle bushing. The switch is installed on the ground service panel, zone 136. The switch case is not sealed. The make position of the contacts is opposite the toggle position. The contacts are rated at 20 amperes with a resistive load and 15 amperes with an inductive load at 28V dc.

12. Position Indicating Pneumatic Check Valve

A. Description and Operation

Two position-indicating pneumatic check valves are provided in the air supply system. The valves are installed in the pressure line of each compressor and are mounted on a bracket above the compressors.

The valve is a combination check valve and pressure switch. During normal operation air flow from the compressor holds the switch open. If the compressor fails, the switch closes and an indicator light on the Flight Engineer/Second Officers annunciator panel, zone 215, comes on. When the switch closes, the check valve closes and prevents reverse flow through the air compressor.

13. On aircraft 032-999,
Air Compressor Drain Valve. _

A. Description

The air compressor drain valve is installed on the outlet port of each air compressor, and is equipped with three (3) ports (INLET, OUTLET, and DRAIN);The INLET port is connected to the air compressor outlet port. The OUTLET port is
R connected to a flexible air hose, which leads to the water tank through a check valve and filter. The DRAIN port is
R connected, with a flexible hose, to the overboard drain.

B. Operation

The air compressor drain valve closes when the air compressor is supplying air, and stays closed while the system is pressurized. When the system is depressurized and the air compressor is not working the drain valve opens. This permits accumulated water to drain out, and prevent water from draining back to the air compressor outlet port.

AIR SUPPLY SYSTEM - FAULT ISOLATION

1. General

The fault isolation diagrams in this section can be used for fault isolation any time a fault is reported or suspected. Before fault isolation is started, the PREREQUISITES listed on the diagram must be fulfilled. Uncommon abbreviations used on a diagram are spelled out on the same diagram.

If the flight crew reports a trouble using a FIRM Fault Code number, the number can be found in the FIRM Fault Code Cross Reference Table in the Chapter 38-INDEX.

The FIRM Fault Code Cross Reference Table includes the flight report (fault symptoms) and the exact Section, Figure, Sheet, and Block number where fault isolation should begin. (Refer to the L-1011 Maintenance Manual Introduction for a more detailed explanation on the use of fault isolation diagrams.)

If a fault is reported or suspected and no FIRM Fault Code is available, the function or fault indication can be found in the table below. When a diagram is selected in this manner fault isolation is started at Block 1.

2. Fault Isolation/Identification

Table 101 is a list of all fault isolation procedures and schematics. Figure 101 is a component location index and Figure 102 is a locator diagram for air supply system components.

Air Supply System Fault Isolation
Table 101

FIGURE	TITLE
103	No Water/Dripping Faucets/Slow Air Pressure Buildup
104	Water Compressor Fail Light ON or Cycling
105	Potable Water System Pressurization Problems
SCHEM 1	Air Supply System Electric Schematic

COMPONENT	QTY	AREA/ACCESS	REFERENCE
CIRCUIT BREAKERS	2	GALLEY RIGHT CB PANEL ZONE 131	
COMPRESSOR INDICATOR LIGHTS	2	FE/SO ANNUNCIATOR PANEL	
POTABLE WATER GROUND SERVICE PANEL	1	BETWEEN FS 729 AND FS 846 ZONE 136	
POTABLE WATER TANK	1	GALLEY LEFT SIDE COMPARTMENT ZONE 133	38-12-00
AIR COMPRESSORS	2	GALLEY LEFT SIDEWALL PANEL FROM FS 704 TO FS 880	38-41-06
PRESSURE TRANSMITTER	1	IN PLUMBING AFT OF POTABLE WATER TANK	38-42-00
PRESSURE INDICATOR	2	ATTENDANTS PANEL IN GALLEY AND GROUND SERVICE PANEL	38-42-00
AIR PRESSURE FILTER	1	GALLEY LEFT SIDE AFT OF POTABLE WATER TANK	38-41-01
PNEUMATIC PRESSURE REGULATOR VALVE	1	GALLEY BELOW FLOOR PANEL 1066Y	38-41-02
PNEUMATIC RELIEF VALVE	1	AT POTABLE WATER TANK	38-41-05
PNEUMATIC PRESSURE SWITCH	2	GALLEY ABOVE AND AFT OF POTABLE WATER TANK	38-41-07
POSITION INDICATING PNEUMATIC CHECK VALVE	2	GALLEY ABOVE AIR COMPRESSORS	38-41-12
AIR PURIFIER	1	GALLEY BELOW AIR COMPRESSORS	38-41-08

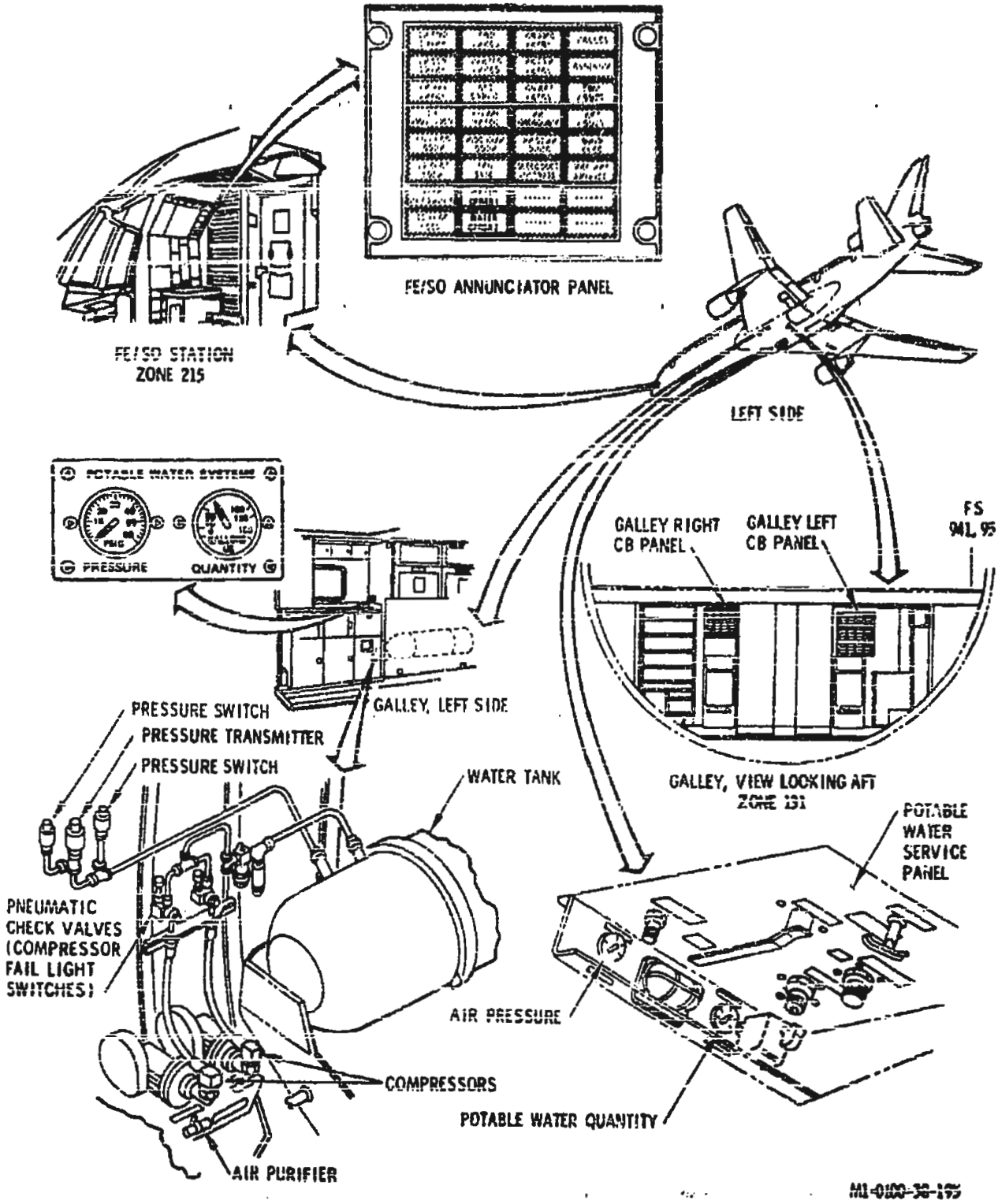
M1-0000-38-469

R
R

Component Location Index
Figure 101

EFFECTIVITY: ALL

001B

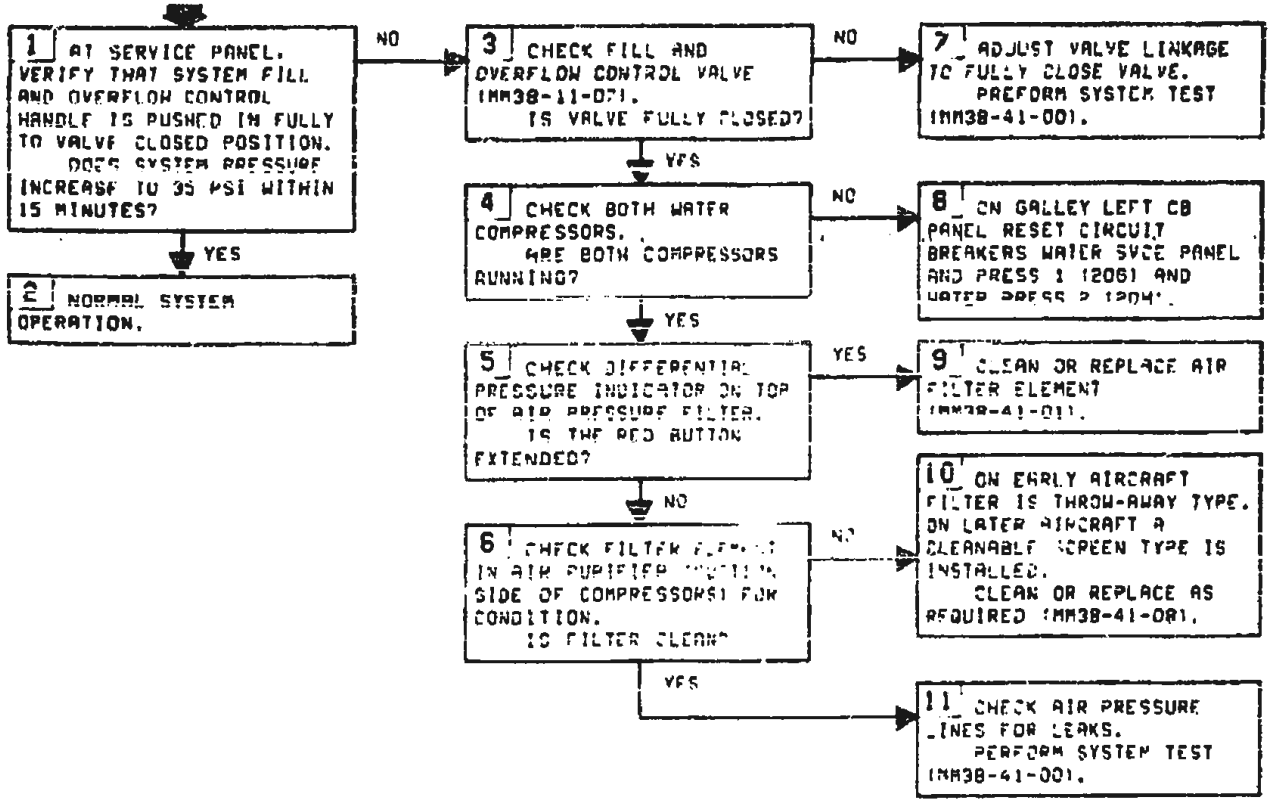


R Air Supply System Component Locator
R Figure 102

PREREQUISITES

ELECTRICAL POWER (MM24-41-001)
POTABLE WATER SYSTEM SERVICED (MM12-15-011)
CB'S: GALLEY RIGHT PANEL 1B, 2B, AND 5B
GALLEY LEFT PANEL 20G AND 20H

NO WATER/DRIPPING FAUCETS/SLOW AIR PRESSURE BUILDUP

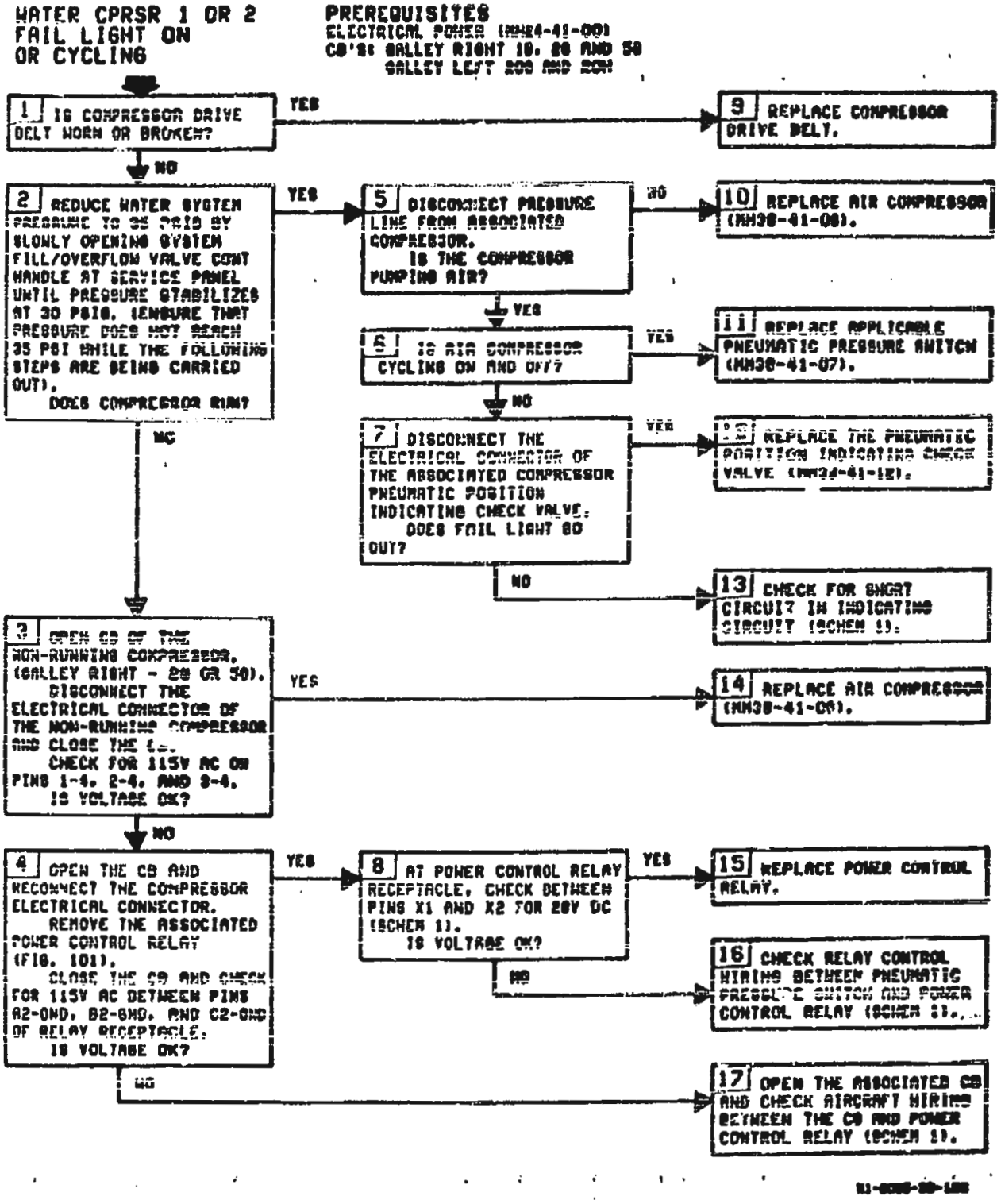

1 AT SERVICE PANEL, VERIFY THAT SYSTEM FILL AND OVERFLOW CONTROL HANDLE IS PUSHED IN FULLY TO VALVE CLOSED POSITION.
DOES SYSTEM PRESSURE INCREASE TO 35 PSI WITHIN 15 MINUTES?
NO
YES
2 NORMAL SYSTEM OPERATION.
3 CHECK FILL AND OVERFLOW CONTROL VALVE (MM38-11-07).
IS VALVE FULLY CLOSED?
NO
YES
7 ADJUST VALVE LINKAGE TO FULLY CLOSE VALVE.
PREFORM SYSTEM TEST (MM38-41-001).
4 CHECK BOTH WATER COMPRESSORS.
ARE BOTH COMPRESSORS RUNNING?
NO
YES
8 ON GALLEY LEFT CB PANEL RESET CIRCUIT BREAKERS WATER SYCE PANEL AND PRESS 1 (20G) AND WATER PRESS 2 (20H).
5 CHECK DIFFERENTIAL PRESSURE INDICATOR ON TOP OF AIR PRESSURE FILTER.
IS THE RED BUTTON EXTENDED?
YES
NO
9 CLEAN OR REPLACE AIR FILTER ELEMENT (MM38-41-011).
6 CHECK FILTER ELEMENT IN AIR PURIFIER (UPSTREAM SIDE OF COMPRESSORS) FOR CONDITION.
IS FILTER CLEAN?
NO
YES
10 ON EARLY AIRCRAFT FILTER IS THROW-AWAY TYPE. ON LATER AIRCRAFT A CLEANABLE SCREEN TYPE IS INSTALLED.
CLEAN OR REPLACE AS REQUIRED (MM38-41-081).
11 CHECK AIR PRESSURE LINES FOR LEAKS.
PERFORM SYSTEM TEST (MM38-41-001).

NOTE

PRESSURE BELOW 10 PSI CAUSES ALL FAUCETS TO DRIP. SLOW PRESSURE INCREASE COULD CAUSE PROLONGED COMPRESSOR RUNNING AND POSSIBLE OVERHEATING

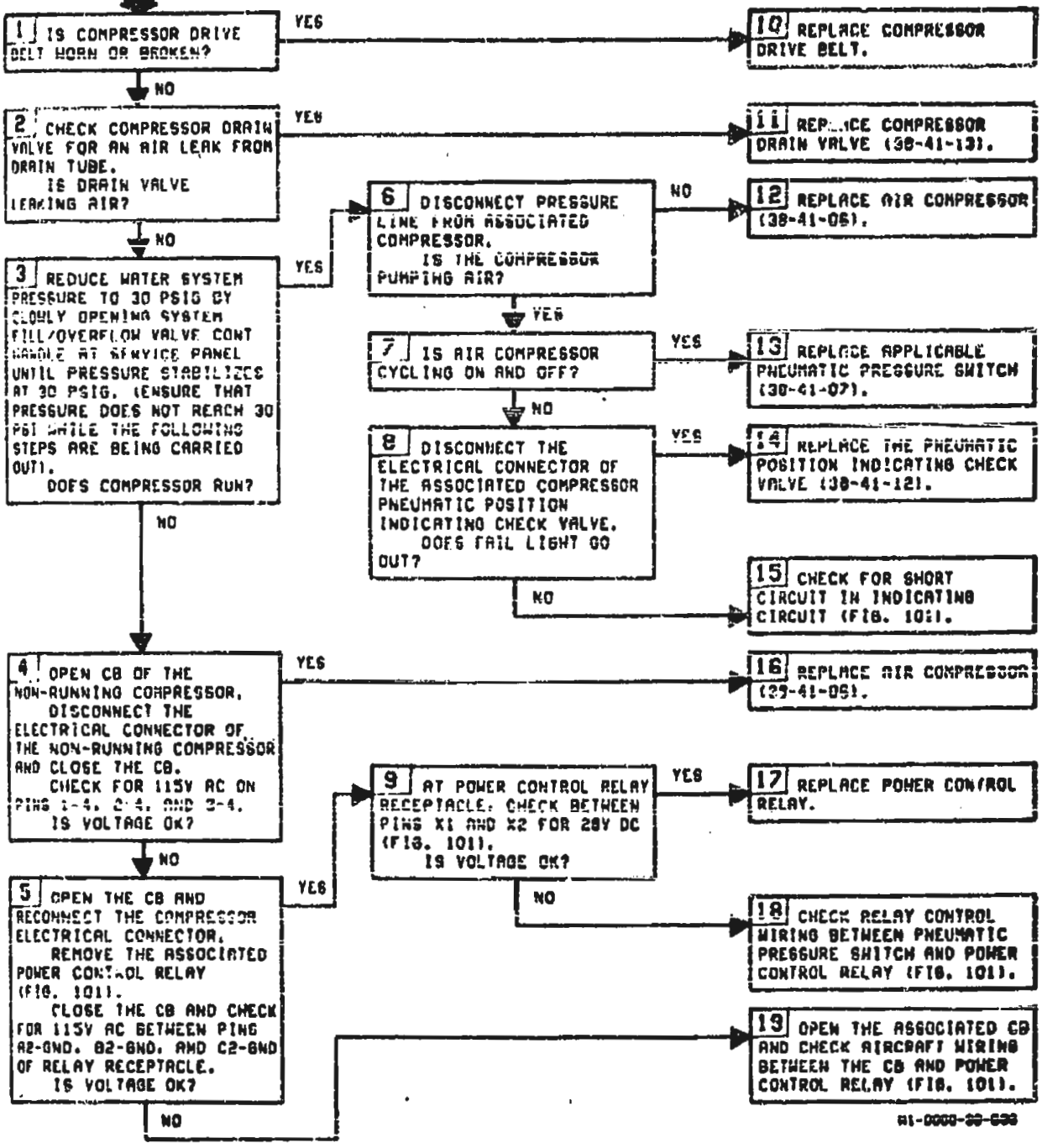
F1-0002-38-105

No Water/Dripping Faucets/Slow Air Pressure Buildup
Figure 103


WATER CPRSR 1 OR 2 FAIL LIGHT ON OR CYCLING
PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: GALLEY RIGHT 19, 28 AND 50
GALLEY LEFT 209 AND 309
1 IS COMPRESSOR DRIVE BELT WORN OR BROKEN?
YES
9 REPLACE COMPRESSOR DRIVE BELT.
NO
2 REDUCE WATER SYSTEM PRESSURE TO 25 PSIG BY SLOWLY OPENING SYSTEM FILL/OVERFLOW VALVE CONT HANDLE AT SERVICE PANEL UNTIL PRESSURE STABILIZES AT 30 PSIG. (ENSURE THAT PRESSURE DOES NOT REACH 35 PSI WHILE THE FOLLOWING STEPS ARE BEING CARRIED OUT).
DOES COMPRESSOR RUN?
YES
5 DISCONNECT PRESSURE LINE FROM ASSOCIATED COMPRESSOR.
IS THE COMPRESSOR PUMPING AIR?
NO
10 REPLACE AIR COMPRESSOR (MM38-41-08).
YES
6 IS AIR COMPRESSOR CYCLING ON AND OFF?
YES
11 REPLACE APPLICABLE PNEUMATIC PRESSURE SWITCH (MM38-41-07).
NO
7 DISCONNECT THE ELECTRICAL CONNECTOR OF THE ASSOCIATED COMPRESSOR PNEUMATIC POSITION INDICATING CHECK VALVE.
DOES FAIL LIGHT GO OUT?
YES
12 REPLACE THE PNEUMATIC POSITION INDICATING CHECK VALVE (MM38-41-12).
NO
13 CHECK FOR SHORT CIRCUIT IN INDICATING CIRCUIT (SCHEM 1).
NO
3 OPEN CB OF THE NON-RUNNING COMPRESSOR, (GALLEY RIGHT - 28 OR 50).
DISCONNECT THE ELECTRICAL CONNECTOR OF THE NON-RUNNING COMPRESSOR AND CLOSE THE CB.
CHECK FOR 115V AC ON PINS 1-4, 2-4, AND 3-4.
IS VOLTAGE OK?
YES
14 REPLACE AIR COMPRESSOR (MM38-41-00).
NO
4 OPEN THE CB AND RECONNECT THE COMPRESSOR ELECTRICAL CONNECTOR.
REMOVE THE ASSOCIATED POWER CONTROL RELAY (FIG. 101).
CLOSE THE CB AND CHECK FOR 115V AC BETWEEN PINS A2-GND, B2-GND, AND C2-GND OF RELAY RECEPTACLE.
IS VOLTAGE OK?
YES
8 AT POWER CONTROL RELAY RECEPTACLE, CHECK BETWEEN PINS X1 AND X2 FOR 28V DC (SCHEM 1).
IS VOLTAGE OK?
YES
15 REPLACE POWER CONTROL RELAY.
NO
16 CHECK RELAY CONTROL WIRING BETWEEN PNEUMATIC PRESSURE SWITCH AND POWER CONTROL RELAY (SCHEM 1).
NO
17 OPEN THE ASSOCIATED CB AND CHECK AIRCRAFT WIRING BETWEEN THE CB AND POWER CONTROL RELAY (SCHEM 1).

R Water Compressor Fail Light ON or Cycling
R Figure 104

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: GALLEY RIGHT 18, 28, AND 58
GALLEY LEFT 20G AND 80H


WATER CPRSR 1 OR 2 FAIL LIGHT ON OR CYCLING
1 IS COMPRESSOR DRIVE BELT WORN OR BROKEN?
YES
10 REPLACE COMPRESSOR DRIVE BELT.
NO
2 CHECK COMPRESSOR DRAIN VALVE FOR AN AIR LEAK FROM DRAIN TUBE. IS DRAIN VALVE LEAKING AIR?
YES
11 REPLACE COMPRESSOR DRAIN VALVE (38-41-13).
NO
3 REDUCE WATER SYSTEM PRESSURE TO 30 PSIG BY SLOWLY OPENING SYSTEM FILL/OVERFLOW VALVE CONT HANDLE AT SERVICE PANEL UNTIL PRESSURE STABILIZES AT 30 PSIG. (ENSURE THAT PRESSURE DOES NOT REACH 30 PSI WHILE THE FOLLOWING STEPS ARE BEING CARRIED OUT). DOES COMPRESSOR RUN?
YES
6 DISCONNECT PRESSURE LINE FROM ASSOCIATED COMPRESSOR. IS THE COMPRESSOR PUMPING AIR?
NO
12 REPLACE AIR COMPRESSOR (38-41-05).
YES
7 IS AIR COMPRESSOR CYCLING ON AND OFF?
YES
13 REPLACE APPLICABLE PNEUMATIC PRESSURE SWITCH (38-41-07).
NO
8 DISCONNECT THE ELECTRICAL CONNECTOR OF THE ASSOCIATED COMPRESSOR PNEUMATIC POSITION INDICATING CHECK VALVE. DOES FAIL LIGHT GO OUT?
YES
14 REPLACE THE PNEUMATIC POSITION INDICATING CHECK VALVE (38-41-12).
NO
15 CHECK FOR SHORT CIRCUIT IN INDICATING CIRCUIT (FIG. 101).
NO
4 OPEN CB OF THE NON-RUNNING COMPRESSOR. DISCONNECT THE ELECTRICAL CONNECTOR OF THE NON-RUNNING COMPRESSOR AND CLOSE THE CB. CHECK FOR 115V AC ON PINS 1-4, 2-4, AND 3-4. IS VOLTAGE OK?
YES
16 REPLACE AIR COMPRESSOR (38-41-05).
NO
5 OPEN THE CB AND RECONNECT THE COMPRESSOR ELECTRICAL CONNECTOR. REMOVE THE ASSOCIATED POWER CONTROL RELAY (FIG. 101). CLOSE THE CB AND CHECK FOR 115V AC BETWEEN PINS A2-GND, B2-GND, AND C2-GND OF RELAY RECEPTACLE. IS VOLTAGE OK?
YES
9 AT POWER CONTROL RELAY RECEPTACLE, CHECK BETWEEN PINS X1 AND X2 FOR 28V DC (FIG. 101). IS VOLTAGE OK?
YES
17 REPLACE POWER CONTROL RELAY.
NO
18 CHECK RELAY CONTROL WIRING BETWEEN PNEUMATIC PRESSURE SWITCH AND POWER CONTROL RELAY (FIG. 101).
NO
19 OPEN THE ASSOCIATED CB AND CHECK AIRCRAFT WIRING BETWEEN THE CB AND POWER CONTROL RELAY (FIG. 101).
A1-0000-38-038

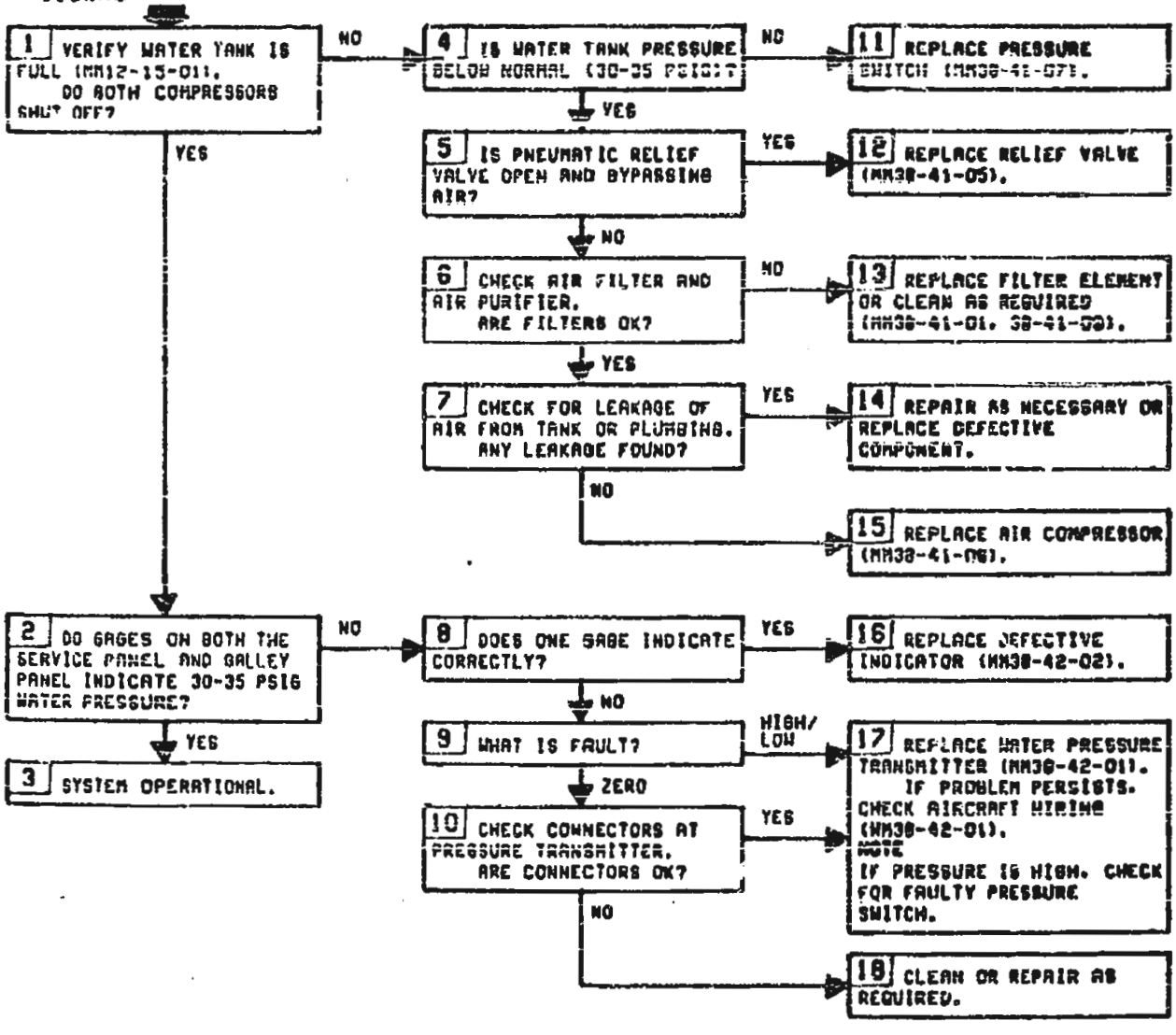
R Water Compressor Fail Light ON or Cycling
R Figure 104

EFFECTIVITY: 001-031 WITH SB38-033 AND 032-999

0018

PREREQUISITES
ELECTRICAL POWER (MM24-41-00)
CB'S: GALLEY LEFT 20B, 20H
GALLEY RIGHT 1B, 2B, 5B

POTABLE WATER SYSTEM PRESSURIZATION PROBLEMS

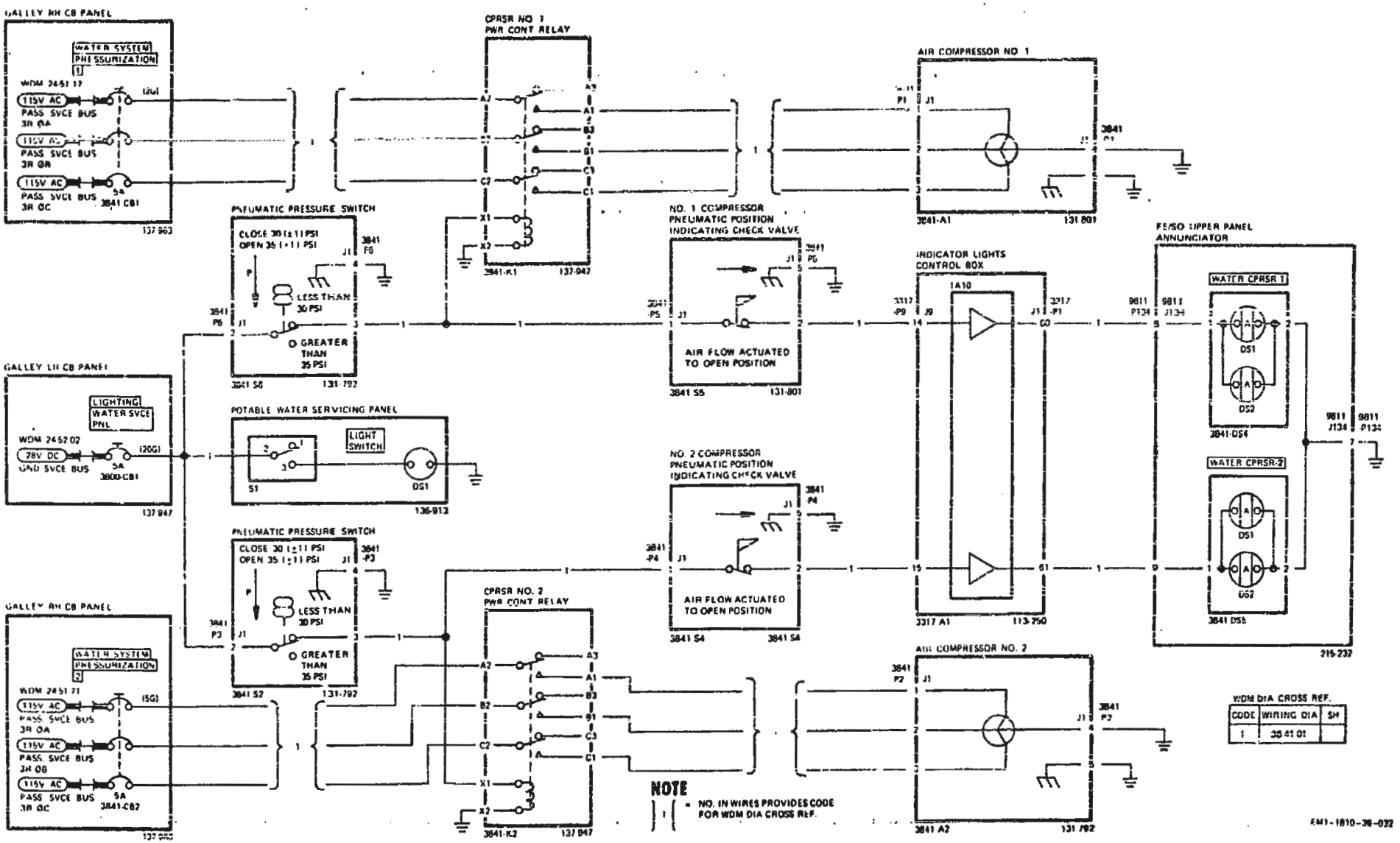

1 VERIFY WATER TANK IS FULL (MM12-15-011). DO BOTH COMPRESSORS SHUT OFF?
NO
4 IS WATER TANK PRESSURE BELOW NORMAL (30-35 PSIG)?
NO
11 REPLACE PRESSURE SWITCH (MM38-41-07).
YES
5 IS PNEUMATIC RELIEF VALVE OPEN AND BYPASSING AIR?
YES
12 REPLACE RELIEF VALVE (MM38-41-05).
NO
6 CHECK AIR FILTER AND AIR PURIFIER. ARE FILTERS OK?
NO
13 REPLACE FILTER ELEMENT OR CLEAN AS REQUIRED (MM38-41-01, 38-41-03).
YES
7 CHECK FOR LEAKAGE OF AIR FROM TANK OR PLUMBING. ANY LEAKAGE FOUND?
YES
14 REPAIR AS NECESSARY OR REPLACE DEFECTIVE COMPONENT.
NO
15 REPLACE AIR COMPRESSOR (MM38-41-06).
YES
2 DO GAGES ON BOTH THE SERVICE PANEL AND GALLEY PANEL INDICATE 30-35 PSIG WATER PRESSURE?
NO
8 DOES ONE GAGE INDICATE CORRECTLY?
YES
16 REPLACE DEFECTIVE INDICATOR (MM38-42-02).
NO
9 WHAT IS FAULT?
HIGH/LOW
17 REPLACE WATER PRESSURE TRANSMITTER (MM38-42-01). IF PROBLEM PERSISTS, CHECK AIRCRAFT WIRING (MM38-42-01). NOTE: IF PRESSURE IS HIGH, CHECK FOR FAULTY PRESSURE SWITCH.
ZERO
10 CHECK CONNECTORS AT PRESSURE TRANSMITTER. ARE CONNECTORS OK?
YES
NO
18 CLEAN OR REPAIR AS REQUIRED.
3 SYSTEM OPERATIONAL.

R1-0001-38-190

R
R Potable Water System Pressurization Problem
Figure 105

EFFECTIVITY: ALL

001B



Air Supply System Electrical Schematic
SCHEM 1

R R 001B EFFECTIVITY: 001-031

AIR SUPPLY SYSTEM - MAINTENANCE NOTES, DATA, TOLERANCES AND REGULATIONS

1. Loss of Potable Water System Pressure

A. When there is a complete loss of potable water pressure, the following procedure should be used to isolate and correct the problem.

(1) Assure that the fill handle on the potable water servicing panel is fully closed.

(2) Check the two circuit breakers on the right-hand galley circuit breaker panel labeled WATER SYSTEM PRESSURIZATION. There is one circuit breaker for each air compressor.

(3) Check the circuit breaker on the left-hand galley circuit breaker panel labeled LIGHTING WATER SERV PANEL. This single circuit breaker can render both air compressors inoperative.

(4) If the problem is due to two defective air compressors, at least one compressor should be replaced (if time permits without a delay).

(5) If there is insufficient time for corrections, the water tank can be pressurized with nitrogen 35 - 38 PSI. This pressure is recommended because the water system relief valve opens at 40 PSI. The L-1011 water tank holds 100 gallons of water plus 50 gallons for air space. With a full tank of water and the above recommended nitrogen pressure, there will be adequate water pressure for a transcontinental flight.

CR 2. Pressure Check of Potable Water Tank Pressure Relief Valve

CR A. Equipment and Materials

CR (1) Tool Kit 38-10-08-0012

CR B. Test Potable Water Tank Pressure Relief Valve

CR (1) Remove relief valve from tank (Ref. 38-41-05).

CR (2) Connect tool 38-10-08-0012 to air source of at least 80
CR psi.

CR (3) Install relief valve on test fitting.

CR (4) Either remove pressure gauge and fill lower tube with
CR water or submerge relief valve in water.

CR (5) Slowly apply air pressure by opening pressure regulator
CR until relief valve poppet is unseated to permit flow.

CR NOTE: Cracking pressure shall be 45.0 ± 5 psi.

CR (6) Increase air pressure to assure freeflow by 56 psig or
CR less.

CR (7) Decrease the air pressure to reseat the relief valve
CR poppet.

CR NOTE: Reseat pressure shall be 38.0 psig minimum.

CR (8) If any of the cracking, full flow, or reseating
CR pressures are outside the limits, remove the valve from
CR the test set up and send it to MCI Accessory Shop for
CR overhaul.

CR (9) Reinstall relief valve using a new O-ring if tested
CR within limits; otherwise, install a new valve also
CR using a new O-ring (Ref. 38-41-05).

AIR SUPPLY SYSTEM - ADJUSTMENT AND TEST

1. Equipment and Materials

Semco 907 leak detector or equivalent

External source of clean, dry, filtered air or nitrogen

2. Referenced Procedures

12-15-01	Potable Water Tank - Servicing
24-41-00	External Power/Ground Service System - Maintenance Practices
38-12-01	Potable Water Tank - Removal and Installation

3. Adjustment/Test

A. Potable Water Pressurization and leak Test:

R (1) On galley right circuit breaker panel, zone 130, open and tag WATER SYSTEM PRESSURIZATION - 1 and 3 circuit breakers (G2) and (G5).

(2) Verify Potable Water tank is full (Ref. 12-15-01).

(3) Gain access to potable water tank (Ref. 38-12-01). Locate two water supply shutoff valves below water tank; Cut Lock-wire, and close shutoff valves.

(4) Locate manual shutoff valve at each lavatory, galley, and service center. Cut lock-wire, and close shutoff valve.

(5) Connect external air/nitrogen hose to air pressure port.

(6) Gradually apply minimum of 150 psi to maximum of 3000 psi air/nitrogen pressure to inlet connector. During pressurization, monitor water system pressure gages. Ensure tank pressure does not exceed 40 psi.

NOTE: The air pressure regulator in the system will accommodate up to 3000 psig pressure from air/nitrogen bottle or shop air pressure and reduce it to tank pressure.

(7) Disconnect air/nitrogen supply when tank pressure stabilizes at 25 to 39 psi.

(8) Monitor tank pressure indicator for 30 minutes, and verify pressure does not decrease more than one (1) PSIG.

(9) Slowly, open potable water tank manual shutoff valves.

(10) Slowly open each potable water manual shutoff valve at lavatories, service centers, and galley.

(11) Check all connections for leaks by applying leak detector solution.

R NOTE: No leaks are allowed (indicated by no bubbles).

(12) Remove tags and close circuit breakers opened in Step 3A(1).

(13) Turn on electrical power (Ref. 24-41-00).

(14) At water ground service panel, pull SYSTEM FILL & OVERFLOW CONTROL VALVE HANDLE and bleed off water tank pressure to less than 29 psig. Push handle back in and verify following:

(a) Both compressors start operating.

(b) WATER CPRSR 1 and WATER CPRSR 2 lights on Flight Engineer/Second Officers annunciator panel go off when compressors start operating.

(c) Open circuit breaker WATER SYSTEM PRESSURIZATION 1. Verify No. 1 compressor stops operating and WATER CPRSR 1 light on Flight Engineer/Second Officers annunciator panel comes on.

(d) Close circuit breaker. Verify compressor starts operating and annunciator warning light goes off.

(e) Open circuit breaker WATER SYSTEM PRESSURIZATION 2. Verify No. 2 compressor stops operating and WATER CPRSR 2 light on Flight Engineer/Second Officers annunciator panel comes on.

(f) Close circuit breaker. Verify compressor starts operating and annunciator warning light goes off.

(g) Both compressors should automatically stop operating at approximately 40 psig.

(15) Turn off electrical power (Ref. 24-41-00).

AIR PRESSURE FILTER - REMOVAL AND INSTALLATION

1. Equipment and Materials

   Protective caps and plugs

   O-rings, AMS 33578, or equivalent (Ref. Fig. 401)

   Lock-wire, Fed Spec QQ-W-390, 0.032-inch diameter, or equivalent

2. Referenced Procedures

   6-40-00 Exterior Access Doors and Panels

   38-41-05 Pneumatic Relief Valve - Removal and Installation

3. Removal/Installation

   A. Removal

      (1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2.

R   (2) Remove serving carts stowed inboard of galley left vertical side panels (Ref. Fig. 401).

      (3) Remove aft vertical side panel as follows:

         (a) Turn attachment studs that secure panel to structure 90 degrees counterclockwise.

         (b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

      (4) Loosen plumbing connection at adjacent T-fitting to allow escape of pressurized air in lines. Disconnect plumbing lines to T-fittings. Cap or plug lines and fittings.

      (5) Remove air pressure filter, T-fittings, pneumatic relief valve (Ref. 38-41-05) and tube assembly as an assembly.

      (6) Loosen jamnut on each side of air pressure filter and remove T-fittings and pneumatic relief valve. Leave jamnuts on respective T-fittings. Retain parts for re-use.

(7) Cap or plug fittings and valve parts.

B. Installation

(1) Verify circuit breakers opened in Step 3A(1) are open and tagged.

CAUTION: DO NOT DAMAGE O-RING PACKINGS.

(2) Coat O-ring packings lightly with grease and install.

CAUTION: ENSURE THAT THE ARROW ON THE AIR PRESSURE FILTER POINTS FORWARD IN THE DIRECTION OF THE AIRFLOW.

(3) Remove protective caps and plugs from T-fittings, air pressure filter, pneumatic relief valve, and tube assembly. Install fittings, valve (Ref. 38-41-05), and tube assembly in air pressure filter. Use jamnut on fitting on each side of air pressure filter. R

NOTE: Tube assembly is installed in exhaust end of pneumatic relief valve.

(4) Install air pressure filter assembled with tees and pneumatic relief valve on mounting bracket using screws.

(5) Remove protective caps from plumbing lines and connect to T-fittings.

(6) Reinstall aft vertical side panel as follows:

(a) Tilt top of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

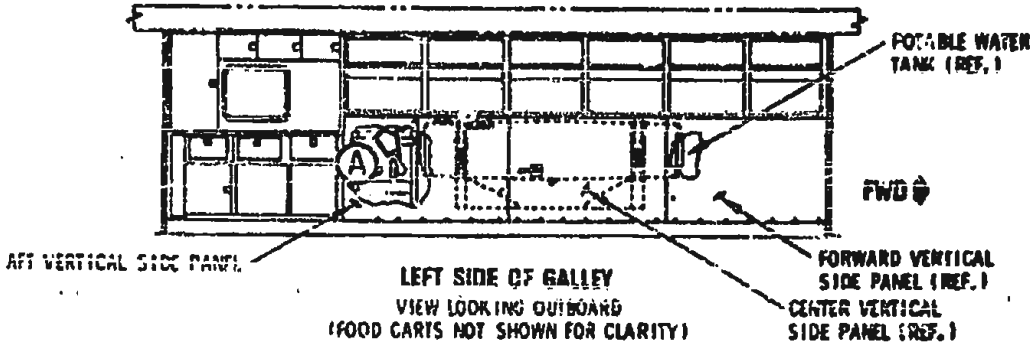
(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

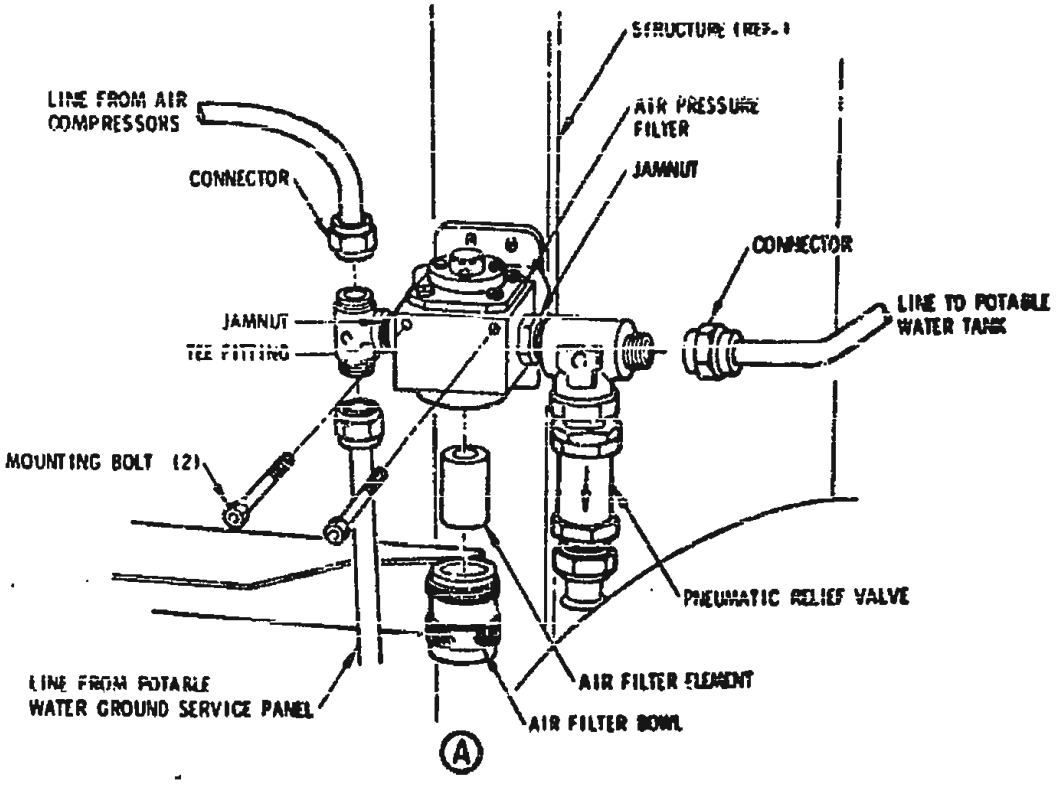
(7) Return serving carts to stowed position inboard of vertical side panels.

(8) Remove tags and close circuit breakers opened in Step 3A(1).

4. Air Filter Replacement

A. Removal


POTABLE WATER TANK (REF.)
FWD
AFT VERTICAL SIDE PANEL
FORWARD VERTICAL SIDE PANEL (REF.)
CENTER VERTICAL SIDE PANEL (REF.)
LEFT SIDE OF GALLEY
VIEW LOOKING OUTBOARD
(FOOD CARTS NOT SHOWN FOR CLARITY)



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R Air Pressure Filter - Removal and Installation
R Figure 401

R EFFECTIVITY: ALL
R
R
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(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER PRESSURIZATION 1 and 2.

(2) Open potable water service panel door 192F and pull
R SYSTEM FILL and OVERFLOW VALVE CONTROL HANDLE to release system pressure.

(3) Gain access to air pressure filter as noted in Steps
R 3A(2) and 3A(3).

(4) Cut lock-wire and remove air filter bowl (Ref. Fig. 401).

(5) Remove filter.

B. Installation

(1) Verify circuit breakers opened in Step 4A(1) are open and tagged.

(2) Replace O-ring located in filter bowl cavity.

(3) Install new filter.

(4) Install filter bowl. Hand-tighten until firmly seated.

(5) Install lock-wire between bowl and filter head.

(6) At potable water service panel, push in SYSTEM FILL & OVERFLOW VALVE CONTROL HANDLE and close panel access door.

(7) Remove tags and close circuit breakers opened in Step 4A(1).

PNEUMATIC PRESSURE REGULATOR VALVE - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps and plugs

Preformed packings

Grease, MIL-G-4343, or equivalent

Leak Detector Solution, Semco 907 or equivalent

2. Referenced Procedure

38-41-00 Air Supply System - Adjustment and Test

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag WATER SYSTEM - PRESSURIZATION 1 (G2) and 2 (G5) circuit breakers.

(2) Remove galley floor panel 136ET by removing attachment screws. Remove panel below panel 136ET by removing screws.

R R CAUTION: TAKE CARE TO PREVENT DAMAGE TO HEATER BLANKET ASSEMBLIES ON ADJACENT PLUMBING LINES.

(3) Loosen B-nut fittings to allow escape of pressurized air in lines, then disconnect B-nut fittings from pneumatic pressure regulator valve (Ref. Fig. 401).

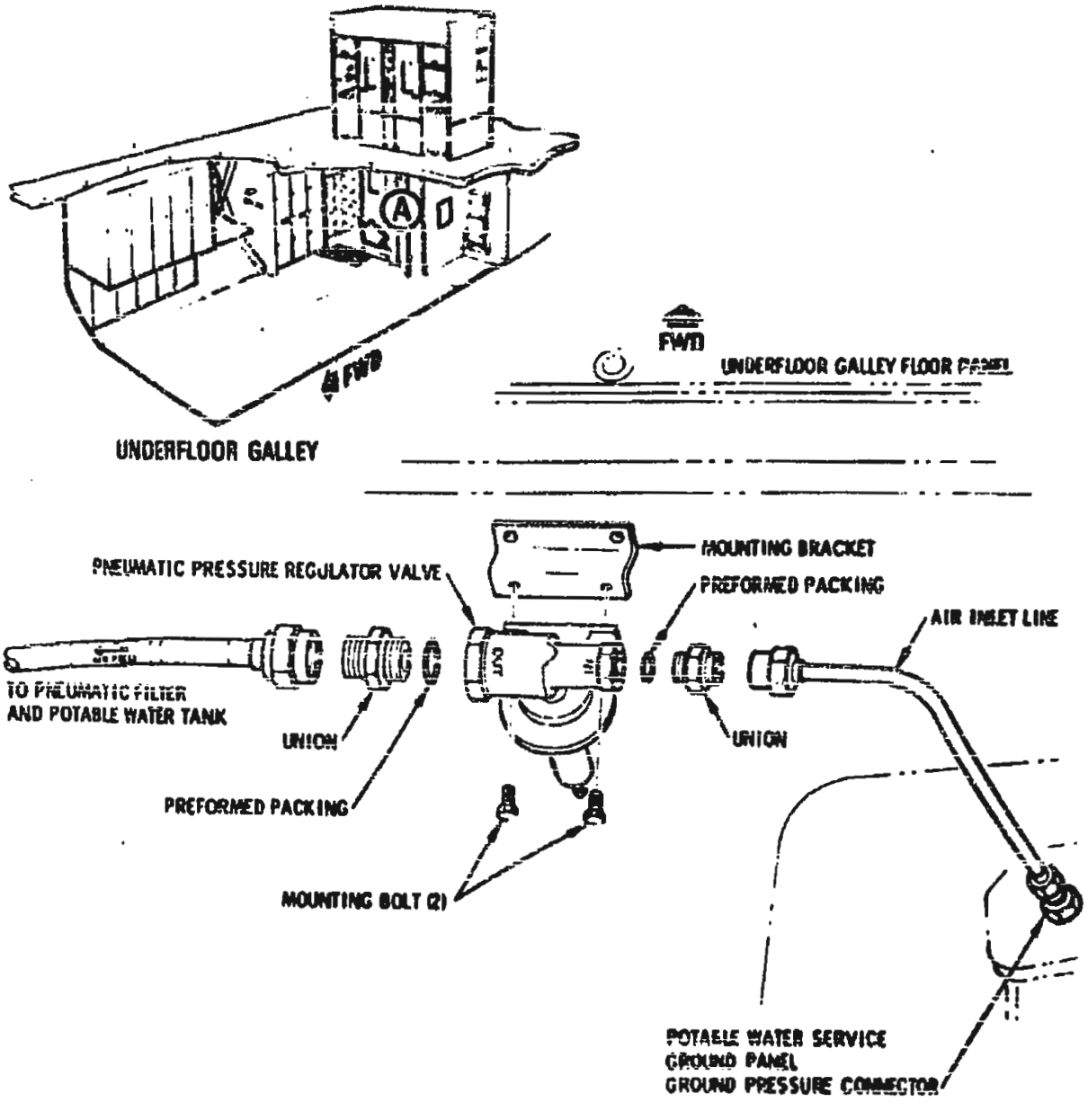
(4) Remove regulator valve mounting bolts from mounting bracket and remove valve.

(5) Remove union fittings from regulator. Discard preformed packings.

(6) Cap or plug lines, fittings and valve ports.

B. Installation

R (1) Verify circuit breakers opened in Step 3A(1) are open and tagged.



R Pneumatic Pressure Regulator Valve - Removal and Installation
R Figure 401

R CAUTION: DO NOT DAMAGE PREFORMED PACKING.

(2) Coat new preformed packings lightly with grease and install on regulator union fittings; install fittings on regulator (Ref. Fig. 401).

(3) Remove protective caps and plugs and using mounting bolts, install pneumatic pressure regulator valve to mounting bracket.

(4) Remove tags and close circuit breakers opened in Step 3A(1).

(5) Pressurize potable water system and check regulator and fittings for leakage using leak detector solution (Ref. 38-41-00).

(6) Reinstall panels removed from galley floor.

PNEUMATIC RELIEF VALVE - REMOVAL AND INSTALLATION

1. General

The pneumatic relief valve is located in the air pressure line of the potable water tank in the left side compartment of the galley, zone 133.

2. Equipment and Materials

O-ring packing

Grease, MIL-G-4343, or equivalent

Leak Detector Solution, Semco 907, or equivalent

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2.

R R (2) Gain access to galley area, remove serving carts stowed in left sidewall galley area from FS704 to FS880 (Ref. Fig. 401).

(3) Remove aft vertical side panel as folows:

(a) Turn attachment studs that secure panel to structure 90 degrees counterclockwise.

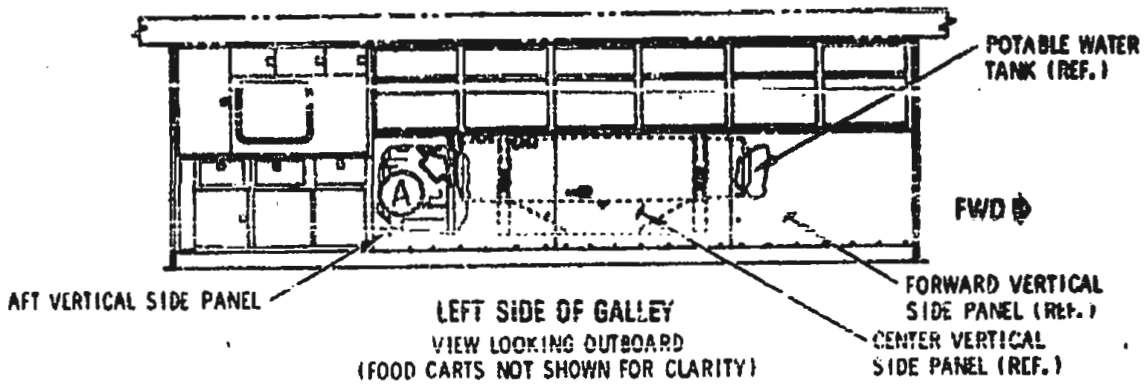
(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

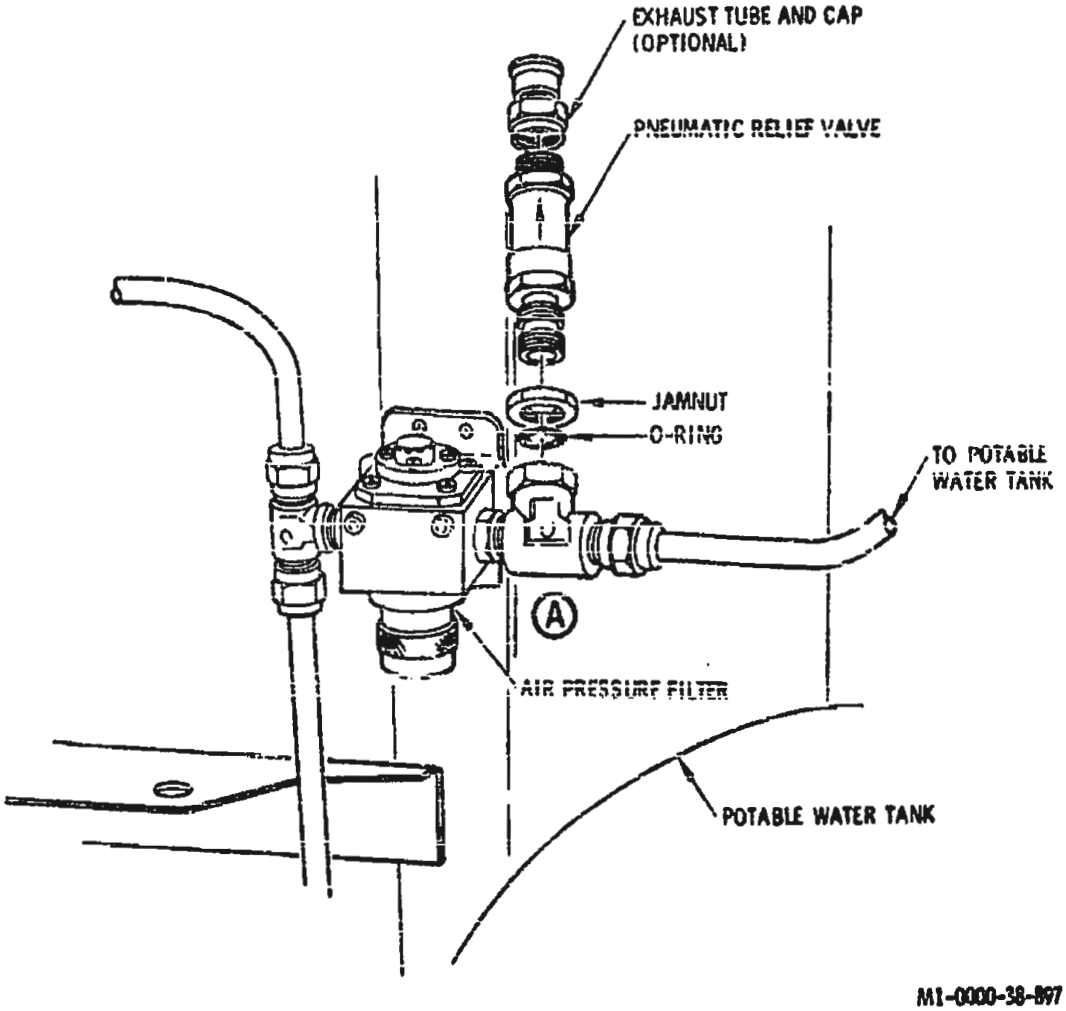
(4) Loosen jamnut and slowly unscrew pneumatic relief valve from T-fitting to allow escape of pressurized air in lines.

(5) Discard O-ring packing.

(6) Unscrew jamnut and exhaust tube from pneumatic relief valve.

B. Installation


POTABLE WATER TANK (REF.)
FWD
AFT VERTICAL SIDE PANEL
FORWARD VERTICAL SIDE PANEL (REF.)
CENTER VERTICAL SIDE PANEL (REF.)
LEFT SIDE OF GALLEY
VIEW LOOKING OUTBOARD
(FOOD CARTS NOT SHOWN FOR CLARITY)



CR Pneumatic Relief Valve - Removal and Installation
CR Figure 401

EFFECTIVITY: ALL

R (1) Verify circuit breakers opened in Step 3A(1) are open and tagged.

(2) Reinstall jamnut on pneumatic relief valve (Ref. Fig. 401).

(3) Reinstall exhaust tube on exhaust port of pneumatic relief valve. White plastic cap on end of exhaust tube remains on tube.

CAUTION: DO NOT DAMAGE O-RING PACKING.

(4) Coat new O-ring packing lightly with grease, and install on pneumatic relief valve.

CAUTION: ENSURE THAT ARROW ON PNEUMATIC RELIEF VALVE POINTS DOWN IN DIRECTION OF AIRFLOW.

(5) Install pneumatic relief valve on T-fitting and tighten jamnut.

(6) Remove tags and close circuit breakers opened in Step 3A(1).

(7) Reinstall aft vertical side panel as follows:

R (a) Tilt top of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(8) Reinstall serving carts.

AIR COMPRESSORS - REMOVAL AND INSTALLATION

1. Equipment and Materials

Protective caps and plugs

O-ring packings

Leak Detector Solution, Semco 907, or equivalent

Grease, MIL-G-4343, or equivalent

2. Referenced Procedures

24-41-00	External Power/Ground Service System - Maintenance Practices
38-41-01	Air Pressure Filter - Removal and Installation
R 38-41-13	Air Compressor Drain Valve - Removal and Installation (032-999)

3. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag PASS. SVCE BUS 3R WATER SYSTEM PRESSURIZATION 1(G2) and 2(G5) circuit breakers.

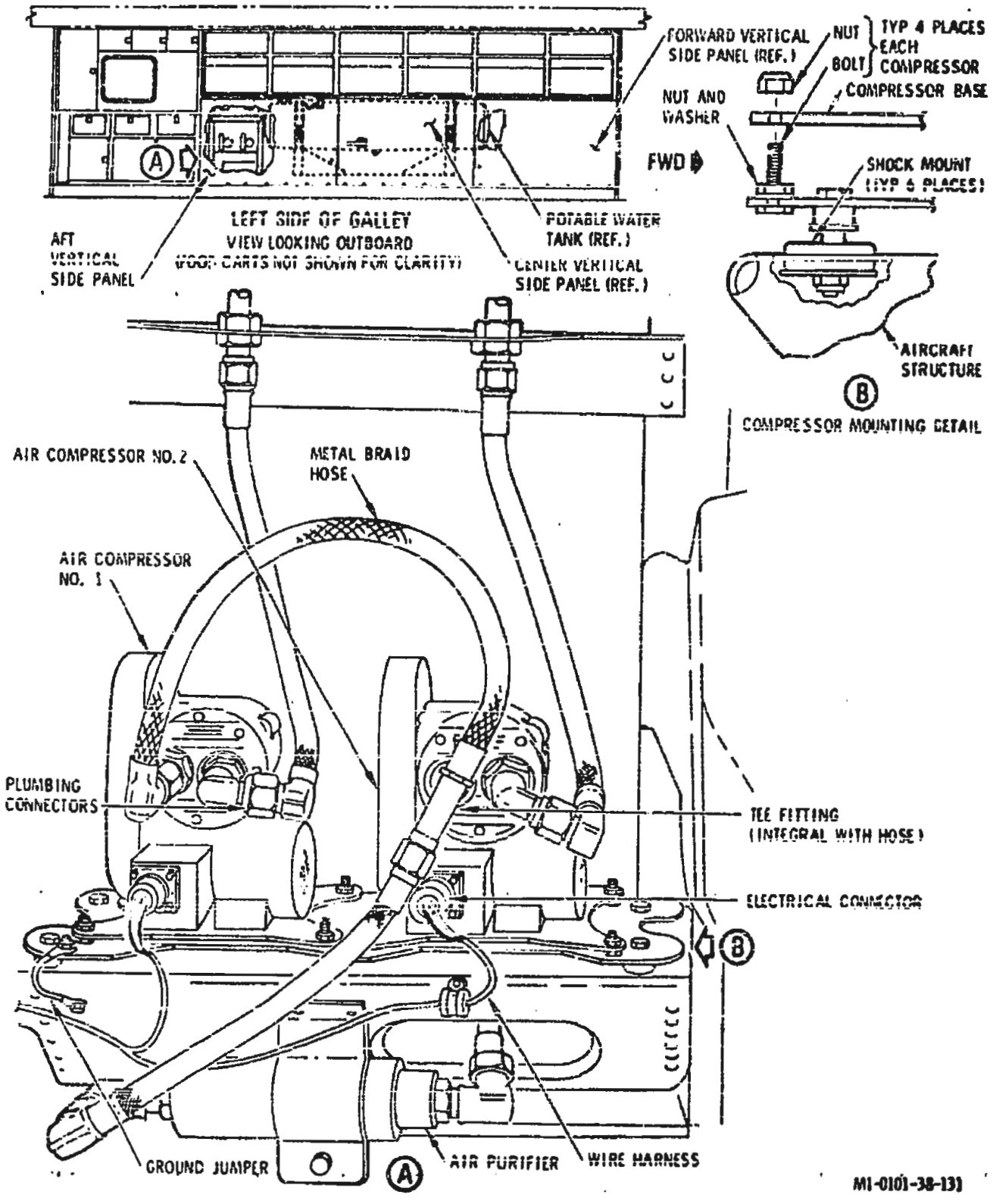
(2) Open lower galley door and gain access to galley area, remove serving carts stowed in left sidewall galley area from FS704 to FS880 (Ref. Fig. 401).

(3) Turn attachment studs that secure left sidewall vertical panel 90 degrees counterclockwise. Pull bottom of panel to disengage studs and lower panel out of top channel.

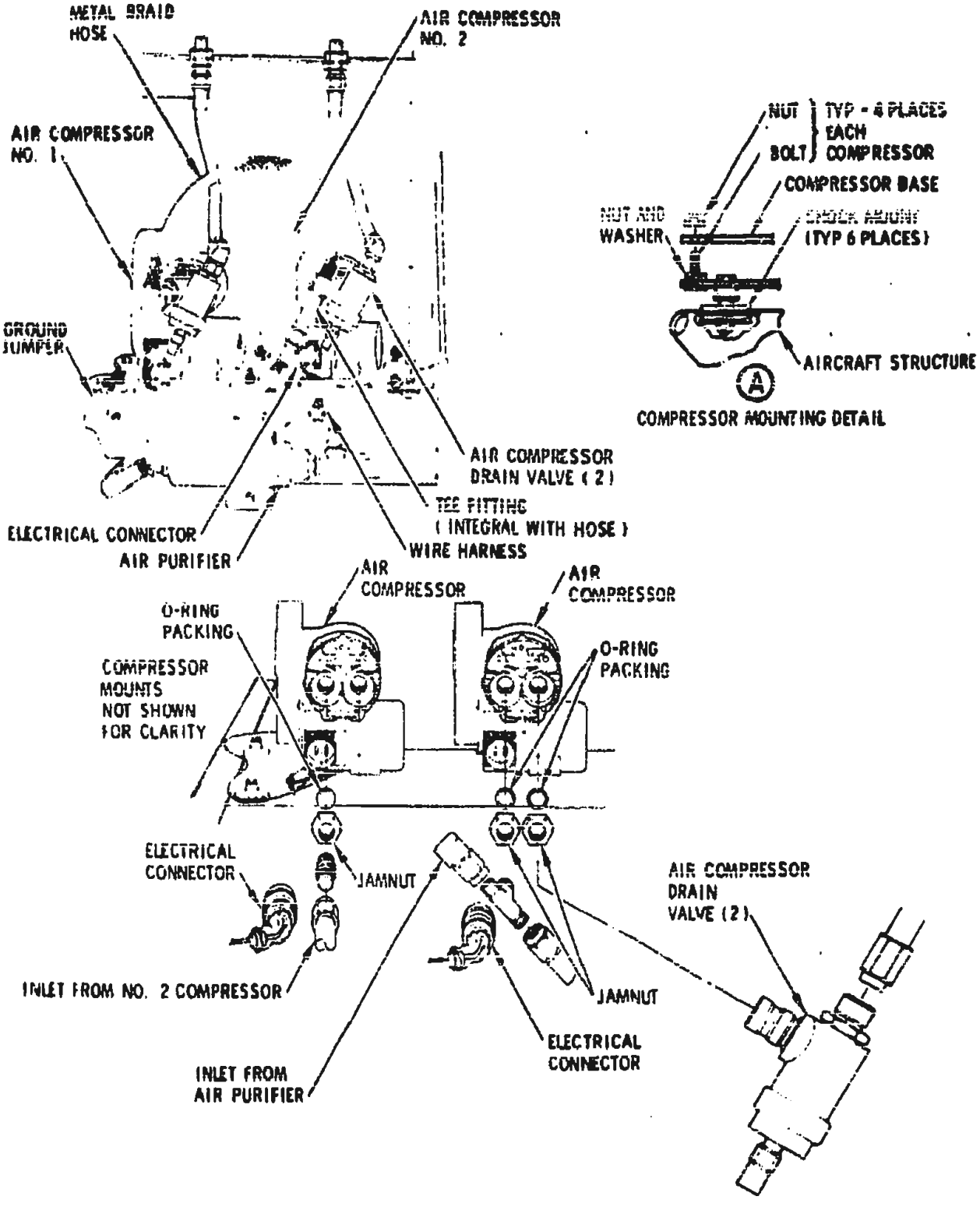
(4) Disconnect electrical connection for each air compressor. Cap receptacles and plugs.

CAUTION: ENSURE THAT THE PORT ADAPTERS ARE NOT DISTURBED WHEN FITTINGS ARE REMOVED.

(5) Hold port adapters so they will not turn. Loosen plumbing connections to allow escape of pressurized air in lines from elbow and tee fittings. Loosen jamnuts



Air Compressor - Removal and Installation
Figure 401



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R Air Compressor - Removal and Installation
R Figure 401

on elbow and tee fittings and remove from compressor INLET port. Discard O-ring packings. Cap or plug fittings.

(6) On aircraft 001-031, repeat Step 3A(5) for elbow fitting on OUTLET port.

(6) On aircraft 032-999, disconnect air compressor drain valve from air compressor (Ref. 38-41-13).

(7) Remove nuts from mounting pad of each compressor and remove compressors. Secure loose end of jumper to bolt stud with string, or equivalent.

B. Installation

(1) Verify circuit breakers opened in Step 2A(1) are open and tagged.

CAUTION: ENSURE THAT JUMPER IS RECONNECTED TO AIR COMPRESSOR MOUNTING PAD.

(2) Install compressors and jumper on fixed bolt ends on shelf with nuts. Tighten nuts.

CAUTION: DO NOT DAMAGE O-RING PACKINGS.

ENSURE THAT THE PORT ADAPTERS ARE NOT DISTURBED WHEN FITTINGS ARE INSTALLED.

(3) Coat new O-ring packings lightly with grease and install on elbow and tee fittings.

R (4) Hold port adapter so it will not turn. Connect elbow and tee fitting to air compressorINLET port (Ref. Fig. 401).

R (5) On aircraft 001-031,
R repeat Step 3B(4) for OUTLET port elbow fittings.

R (5) On aircraft 032-999, connect air compressor drain valve to OUTLET ports (Ref. 38-41-13).

CAUTION: ENSURE THAT THE LINE INTERCONNECTING THE AIR COMPRESSORS IS CONNECTED TO THE INLET PORTS AND THE LINES FROM THE POSITION INDICATING PNEUMATIC CHECK VALVES (REF. FIG. 401) ARE CONNECTED TO THE OUTLET PORTS.

R (6) Remove protective caps and plugs from fittings and connect plumbing lines to compressors. Tighten fitting and jamnuts.

(7) Inspect potable water system air pressure filter assembly and filter element. Clean or replace element as required (Ref. 38-41-01).

(8) Remove protective caps from electrical receptacles and plugs and connect electrical connections to air compressors.

(9) Remove tags and close circuit breakers opened in Step 3A(1).

(10) Turn on electrical power (Ref. 24-41-00).

(11) Pressurize potable water system and check compressor fittings with leak detector solution.

(12) Turn off electrical power (Ref. 24-41-00).

(13) Reinstall left vertical sidewall panel as follows:

(a) Tilt top of panel outboard so that top enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

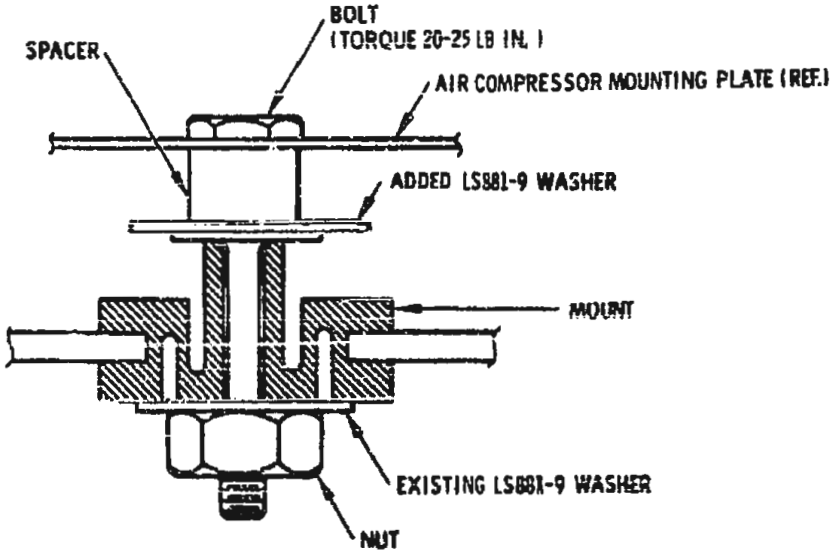
(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(13) Reinstall serving carts and close lower galley door accomplished in Step 3A(2).

C. Shock Mount Replacement

CAUTION: DO NOT TORQUE THE SHOCK MOUNT BOLT OVER 25 LB IN.

When the air compressor mount assembly is replaced, it is recommended that an additional washer be installed between mount and spacer. (On later aircraft, the additional washer
R is installed in production). Torque mount bolt 20 to 25 lb inch when installing mount assembly. Torque above this value cah result in damage to mount (Ref. Fig. 402).



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R
R

Air Compressor Mount
Figure 402

PNEUMATIC PRESSURE SWITCH - REMOVAL AND INSIALLAION

1. Equipment and Materials

Protective caps and plugs

Leak Detector Solution, Semco 907, or equivalent

2. Referenced Procedures

24-41-00 External Power/Ground Service System - Maintenance Practices

38-41-00 Air Supply System - Adjustment and Test

3. Removal/Installation

A. Removal

The pneumatic pressure switches control the operation of the two air compressors that pressurize the potable water system. They are located in the left side of the galley area above and aft of the potable water tank.

(1) On galley left circuit breaker panel, zone 130, open and tag LIGHTING WATER SVCE PNL (G20) circuit breaker.

R (2) On galley right circuit breaker panel, open and tag WATER SYSTEM - PRESSURIZATION 1 (G2) and 2 (G5) circuit breakers.

R (3) At POTABLE WATER GROUND SERVICE panel 192F, pull the SYSTEM FILL & OVERFLOW CONTROL HANDLE and vent tank pressure; return handle to FLT (full in) position.

R (4) Gain access to pneumatic pressure switches as follows:

R (a) Above galley work counter sink, open ACCESS DOOR
R POTABLE WATER FILL/OVERFLOW VALVE (switches are
R aft of opening).

R NOTE: Each pneumatic pressure switch controls one of
R two compressors.

(5) Disconnect electrical connector; cap receptacle and plug.

(6) Loosen plumbing connection to allow escape of pressurized air in line and disconnect plumbing line; plug plumbing connector.

(7) Remove jamnut under mounting bracket and remove pneumatic pressure switch. Retain jamnut for installation of replacement switch; cap pressure switch plumbing connection.

B. Installation

R (1) Verify circuit breakers opened in Steps 3A(1) and 3A(2) are open and tagged.

(2) Remove protective cap from pneumatic pressure switch and install in mounting bracket; install and tighten jamnut.

(3) Remove protective plug from fitting; connect plumbing line to pressure switch and tighten fitting.

(4) Reconnect electrical connector to pressure switch.

(5) On galley left circuit breaker panel, remove tags and close circuit breakers opened in Step 3A(1).

(6) On galley right circuit breaker panel, remove tags and close circuit breakers opened in Step 3A(2).

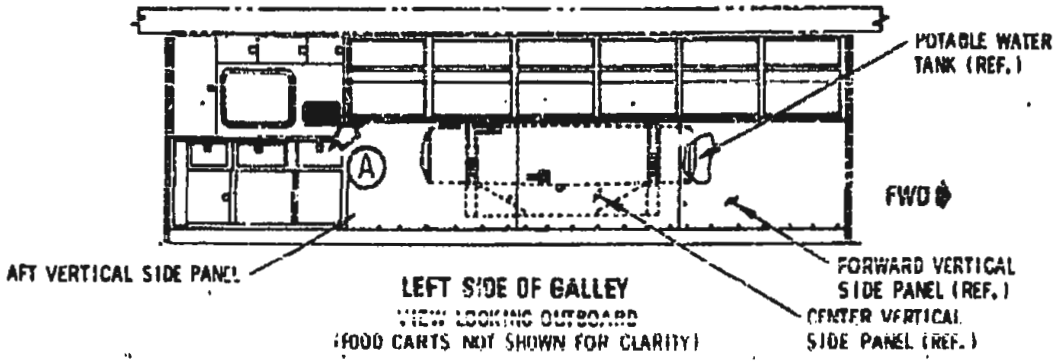
(7) Perform air supply system adjustment and test procedure (Ref. 38-41-00).

(8) Leak check pneumatic pressure switch using leak detector solution.

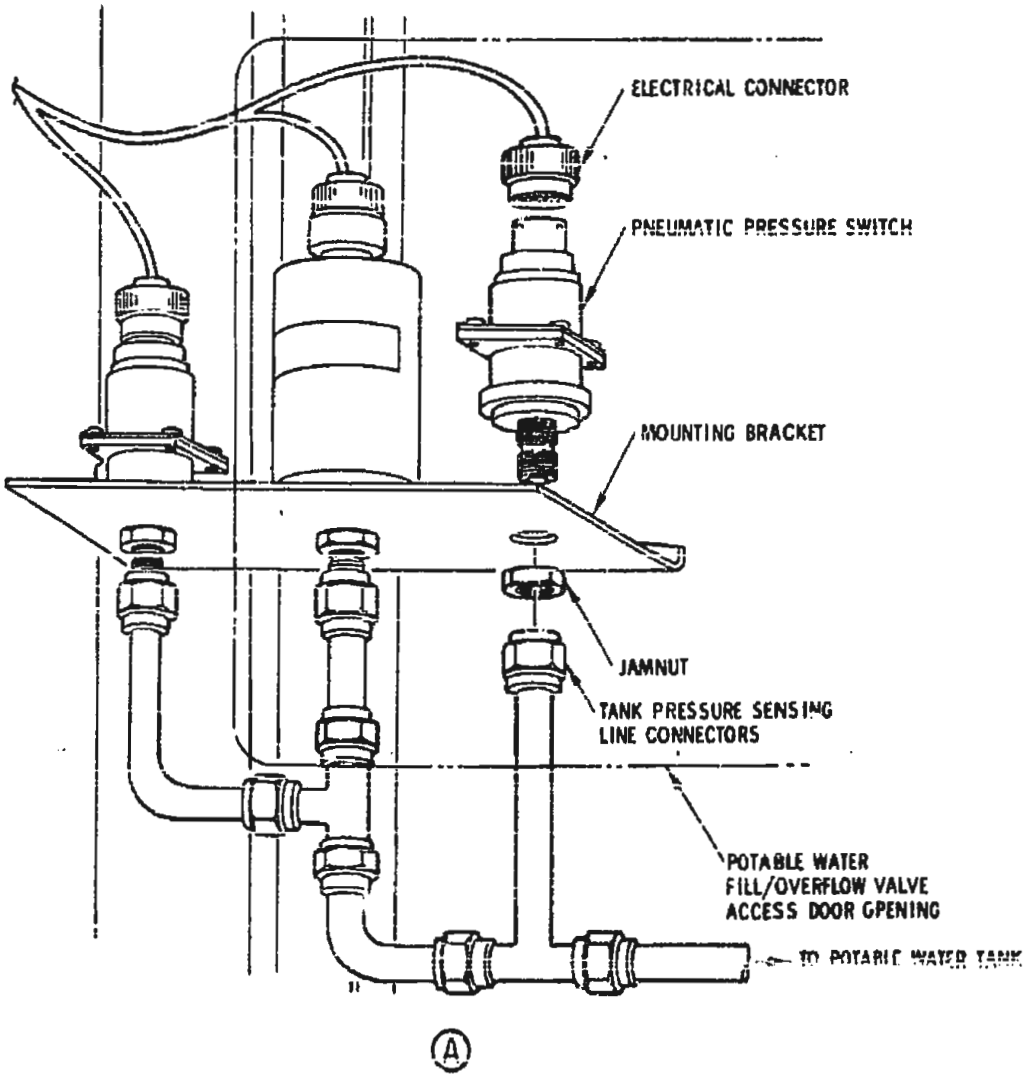
(9) Turn off electrical power (Ref. 24-41-00).

(10) Close and latch door/panel opened for access to pressure switches, zone 130.

(11) Close and latch potable water ground service panel, 192.



LEFT SIDE OF GALLEY
VIEW LOOKING OUTBOARD
(FOOD CARTS NOT SHOWN FOR CLARITY)



M1-1800-38-132

R Pneumatic Pressure Switch - Removal and Installation
R Figure 401

EFFECTIVITY: ALL

001B

AIR PURIFIER - REMOVAL AND INSTALLATION

1. General

Potable water system air purifier, part number 673018-101, is a non-cleanable throw-away unit.

Revised air purifier, part number 673018-103, incorporates a 40 mesh screen element in lieu of 25 micron, and a screw joint to allow disassembly and cleaning of the element.

It is also identifiable by the cleaning instruction placard on the purifier housing.

NOTE: Upon removal, part number 673018-103 (cleanable filter) should be routed to the appropriate shop to be ultrasonically cleaned.

The removal and installation procedure is identical for both units.

2. Equipment and Materials

Protective caps and plugs

O-ring packings

Grease, MIL-G-4343, or equivalent

3. Removal/Installation

A. Removal

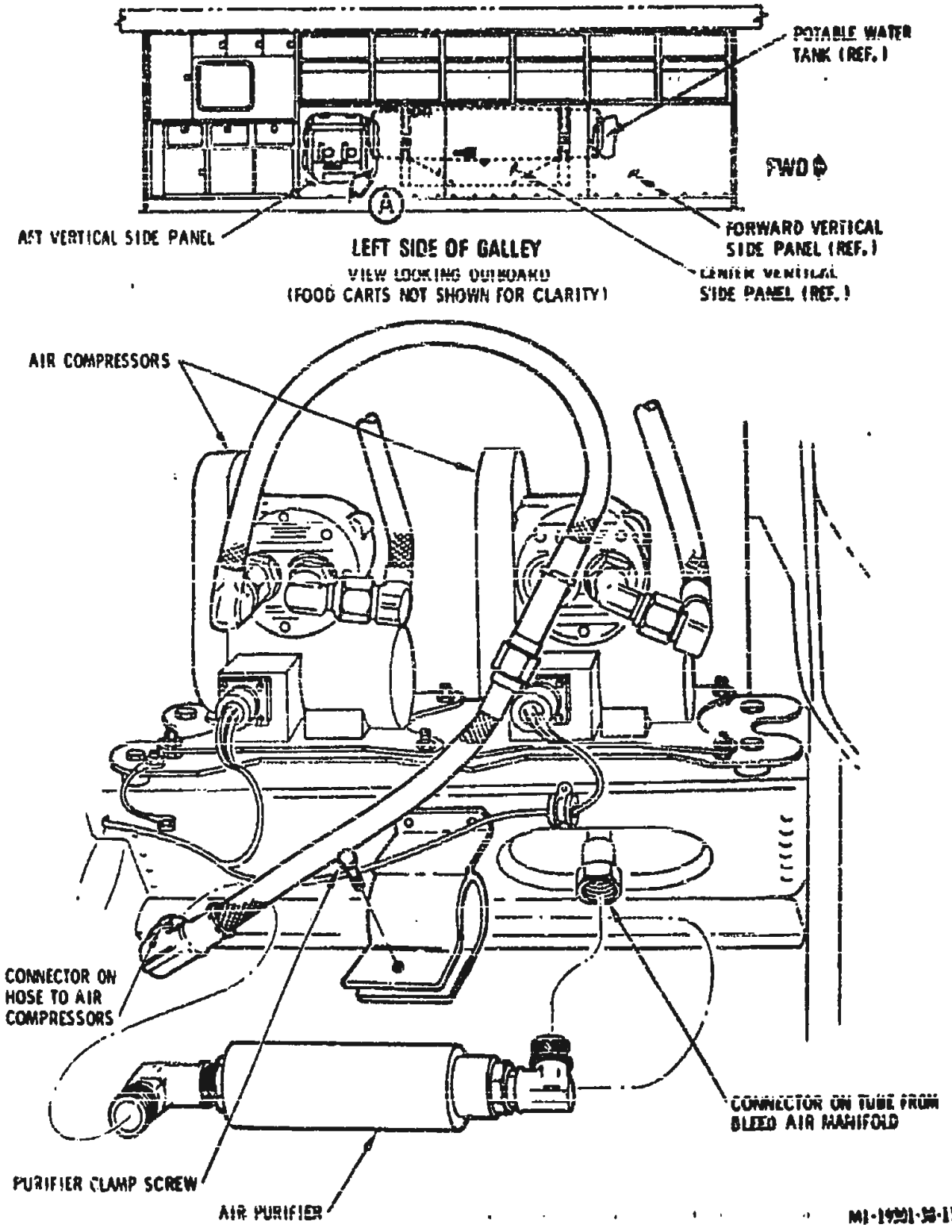
(1) On galley right circuit breaker panel, zone 130, open and tag WATER SYSTEM PRESSURIZATION 1 and 2 circuit breakers.

(2) Open lower galley door and gain access to the galley area, remove serving carts stowed in the left sidewall galley area from FS 704 to FS 880 (Ref. Fig. 401).

(3) Remove aft vertical side panel as follows:

R (a) Turn attachment studs 90 degrees counterclockwise
R to remove panel attached to structure.

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.



Air Purifier - Removal and Installation
Figure 401

(4) Loosen B-nut connections to allow escape of pressurized air in lines and disconnect from air purifier. Cap or plug fittings and ports of air purifier.

(5) Remove screw from clamp assembly and slide air purifier out of clamp assembly.

(6) Loosen jamnuts and remove fittings from purifier.

NOTE: If air purifier removed is part number 673018-103, proceed with Steps 3A(7) through 3A(10).

(7) Disassemble air purifier as follows:

(a) Using wrench flats at ends of purifier, unscrew filter element from purifier housing (Ref. Fig. 402).

(b) Discard O-ring packing.

(8) Clean filter screen element as specified on cleaning instruction placards.

(9) Clean air purifier housing of any contaminants.

CAUTION: DO NOT DAMAGE O-RING PACKINGS.

(10) Reassemble purifier as follows:

(a) Coat new o-ring packing lightly with grease and install on filter element.

CAUTION: DO NOT EXCEED TORQUE OF 250 LB. IN. ON AIR PURIFIER FLATS.

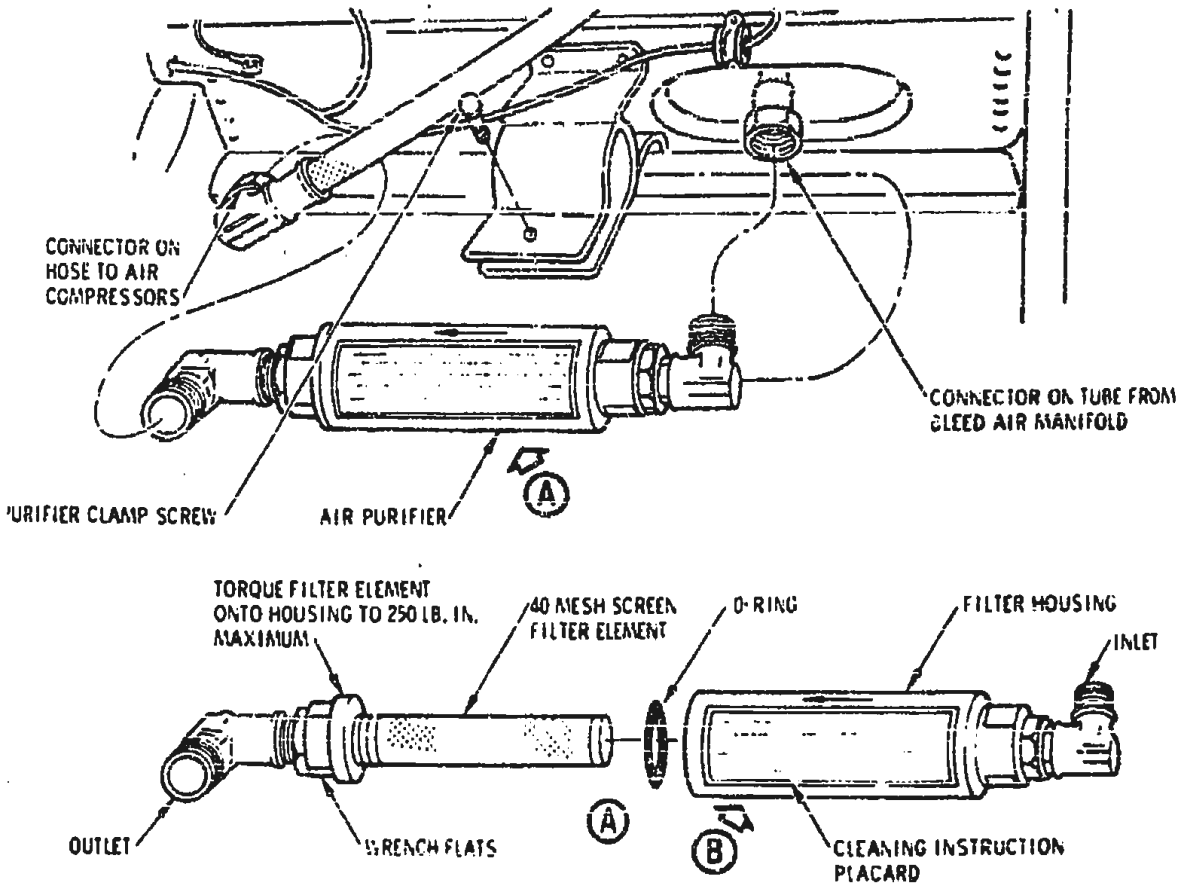
(b) Install filter element into air purifier housing and tighten to 250 lb. in. torque.

B. Installation

(1) Verify circuit breakers opened in Step 2A(1) are open and tagged.

CAUTION: ENSURE THAT DIRECTIONAL ARROWS ON THE AIR PURIFIER POINT IN THE DIRECTION OF AIR FLOW TOWARD THE AIR COMPRESSORS.

(2) Remove protective plugs and install air purifier in clamp assembly using attachment screw. Do not tighten screw.



ULTRASONICALLY CLEAN FILTER ELEMENT IN A WARM DETERGENT SOLUTION FOR A PERIOD OF 15 MINUTES. ROTATING ELEMENT 90° EVERY 5 MINUTES TO AID CLEANING. USE SOFT BRISTLE BRUSH TO DISLODGE CONTAMINANT

(B)

M1-0100-38-205

R Air Purifier Cleanable Filter Element - Removal and Installation
R Figure 402

R EFFECTIVITY: PART NUMBER 673018-103

R

0018

CAUTION: DO NOT DAMAGE O-RING PACKINGS.

(3) Coat new O-ring packings lightly with grease and install on fittings.

CAUTION: DO NOT EXCEED TORQUE OF 250 LB IN. ON AIR PURIFIER FLATS.

(4) Remove protective caps and plugs and install B-nuts on air purifier.

(5) Tighten clamping screw in clamp assembly.

(6) Reinstall aft vertical side panel as follows:

(a) Tilt top of panel outboard so that top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(7) Reinstall serving carts and close lower galley door accomplished in Step 3A(2).

(8) Remove tags and close circuit breakers opened in Step 2A(1).

LINE-TYPE PNEUMATIC CHECK VALVE - REMOVAL AND INSTALLATION

1. General

Two line-type pneumatic check valves are installed in the potable water air supply system. One valve is installed in the pressure line of the potable water tank, and the other is installed in the ground service line inboard of the pneumatic pressure regulator valve.

2. Equipment and Materials

Protective caps and plugs

Leak Detector Solution, Semco 907, or equivalent

O-ring packing

Grease, MIL-G-4343, or equivalent

3. Referenced Procedures

24-41-00 External Power/Ground Service System - Maintenance Practices

4. Removal/Installation

A. Removal

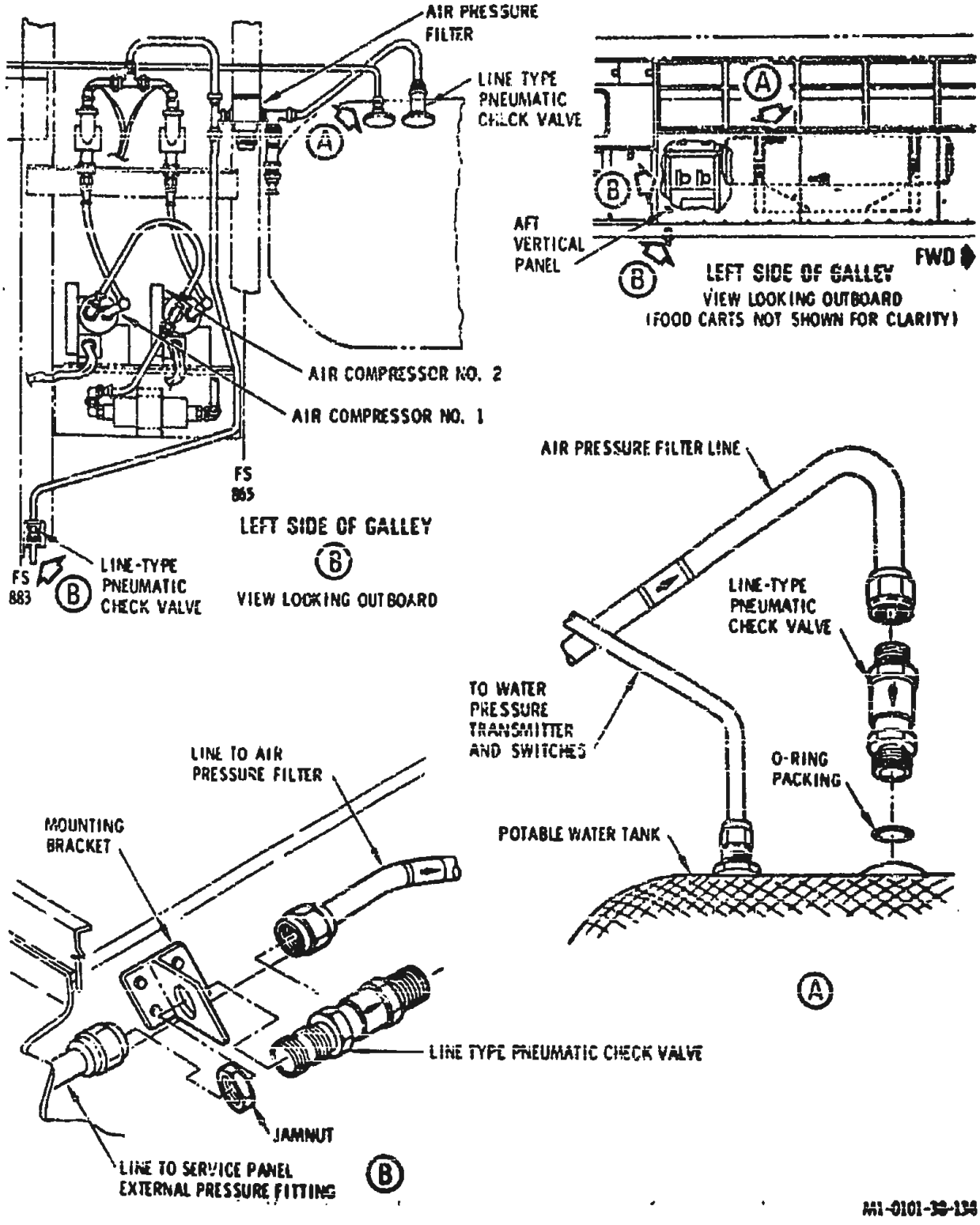
(1) On galley right circuit breaker panel, zone 130, open and tag circuit breakers WATER SYSTEM PRESSURIZATION 1 and 2 circuit breakers.

R (2) Open potable water ground service panel access door,
R zone 136; pull SYSTEM FILL/OVERFLOW VALVE CONTROL
R HANDLE and vent water tank air pressure. Return handle to FLT position (full in) and close door.

R (3) Open lower galley door and gain access to galley area,
R remove serving carts stowed in left sidewall area from FS704 to FS880 (Ref. Fig. 401).

(4) Remove aft vertical side panel as follows:

R (a) Turn attachment studs 90 degrees counterclockwise
R to remove panel attached to structure.



M1-0101-38-134

R R Line-type Pneumatic Check Valve - Removal and Installation
Figure 401

EFFECTIVITY: ALL

0016

(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

(5). Remove external air pressure line-type pneumatic check valve located inboard and below aft air compressor as follows:

(a) Loosen B-nut connections to allow escape of pressurized air in lines, then disconnect lines.

(b) Remove jamnut securing check valve to mounting bracket.

(c) Remove check valve, and cap or plug lines, fittings, and valve ports.

R (6) Remove line-type pneumatic check valve in potable water tank air pressurization line located at aft end of potable water tank as follows:

(a) Loosen B-nut connector to allow escape of pressurized air in lines and then disconnect connector.

(b) Remove check valve from tank fitting and discard O-ring packing.

(c) Cap or plug lines, fittings and valve ports.

B. Installation

R (1) Verify circuit breakers opened in Step 4A(1) are open and tagged.

(2) Install line-type pneumatic check valve in air pressure line from Potable Water Ground Service Panel as follows:

CAUTION: ENSURE THAT DIRECTIONAL ARROW ON VALVE POINTS IN THE DIRECTION OF FLOW TOWARD POTABLE WATER TANK.

(a) Remove protective plugs and caps from lines and check valve; install in mounting bracket and tighten jamnut.

(b) Connect B-nut connectors and tighten.

(3) Install line-type pneumatic check valve in potable water tank air pressurization line as follows:

CAUTION: DO NOT DAMAGE O-RING PACKING.

(a) Coat new O-ring packing lightly with grease and install on check valve (tank fitting end).

CAUTION: ENSURE THAT DIRECTIONAL ARROW ON VALVE POINTS IN THE DIRECTION OF FLOW TOWARD POTABLE WATER TANK.

(b) Remove protective caps and plugs, and install pneumatic check valve in water tank fitting.

(c) Connect B-nut connector to check valve and tighten.

(4) Remove tags and close circuit breakers opened in Step 4A(1).

(5) Turn on electrical power (Ref. 24-41-00).

(6) Using leak detector solution, perform leakage check of valve and fittings.

R
R NOTE: For leakage check of check valve between ground service panel and air pressure filter, external air pressure must be applied to GROUND PRESSURE CONNECTION on potable water ground service panel.

(7) Reinstall aft vertical side panel as follows:

R (a) Tilt top of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(8) Reinstall serving carts and close lower galley door accomplished in Step 4A(3).

(9) Turn off electrical power (Ref. 24-41-00).

POSITION INDICATING PNEUMATIC CHECK VALVES REMOVAL AND INSTALLATION

1. Equipment and Materials

Leak Detector Solution, Semco 907 or equivalent

Protective caps and plugs

2. Referenced Procedure

24-41-00 External Power/Ground Power System - Maintenance Practices

3. Removal/Installation

NOTE: The position indicating pneumatic check valves are each placarded COMPRESSOR FAIL SW. They are located in galley left side above the air compressors.

A. Removal

(1) On galley left circuit breaker panel, zone 130, open and tag LIGHTING WATER SVCE PNL (G20) circuit breaker.

(2) Open galley door and gain access to galley area. Remove serving carts that are stowed left side of the galley from FS 704 to FS 880.

(3) Remove aft vertical side wall panel as follows:

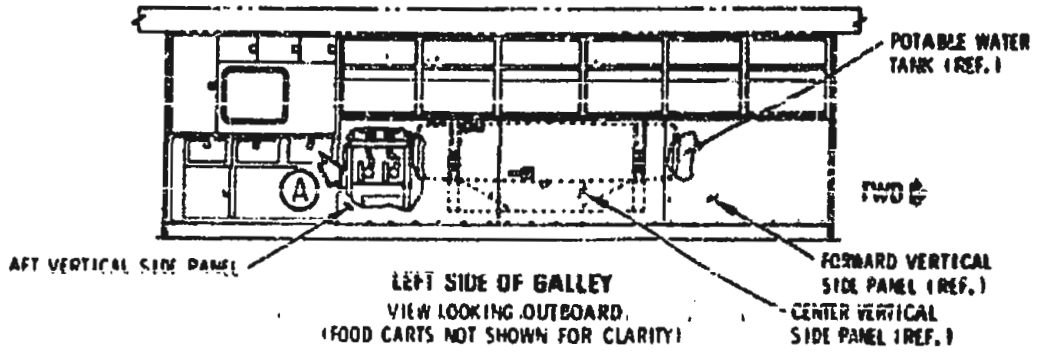
(a) Turn attachment studs that secure panel to structure 90 degrees counterclockwise.

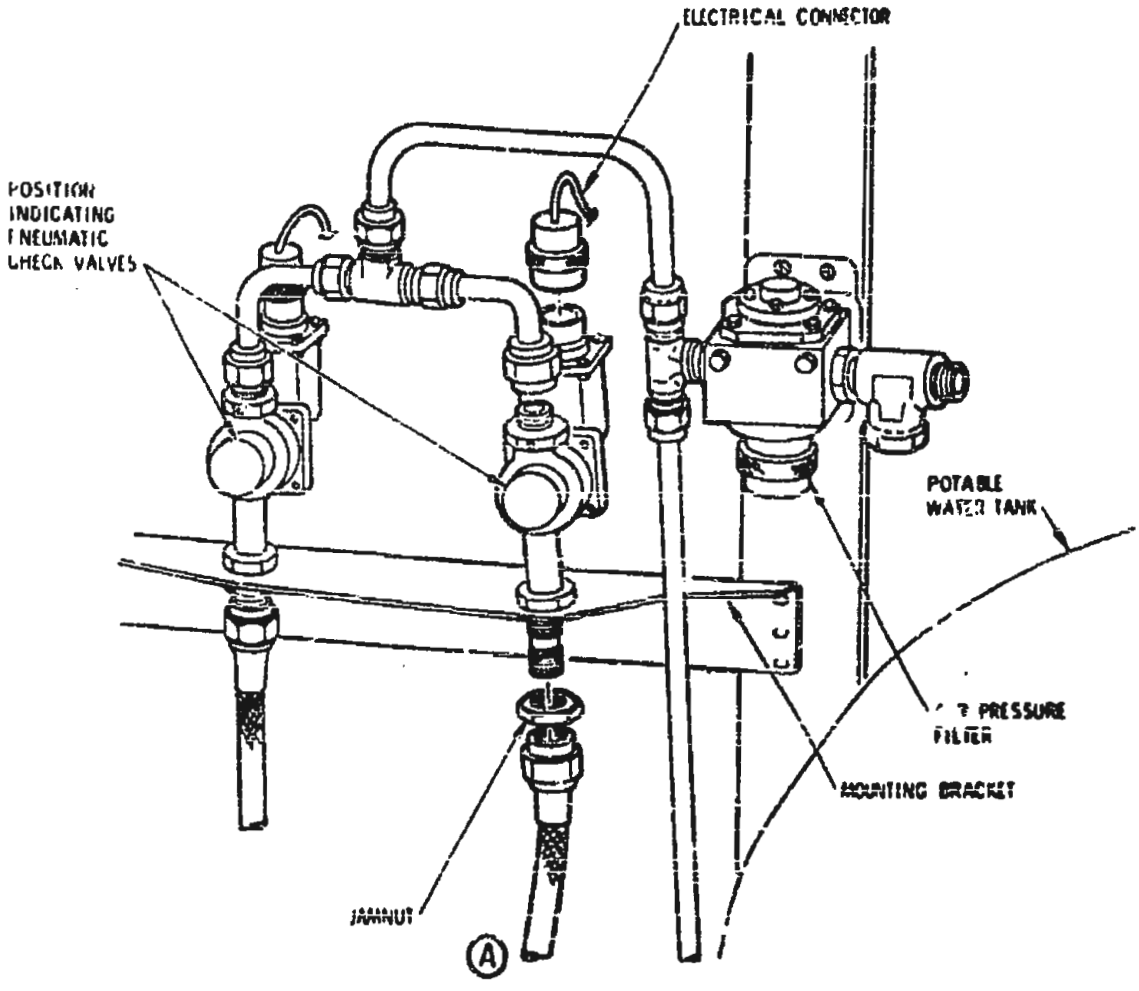
(b) Pull bottom of panel inboard to disengage studs and lower panel out of top channel.

(4) Disconnect electrical connector from top of applicable check valve.

R (5) Loosen B-nut connections to allow escape of pressurized air in lines and remove upper air outlet line and lower air inlet flex hose from applicable check valve.

(6) Remove jamnut under mounting bracket and remove position indicating pneumatic check valve and cap end fittings.


POTABLE WATER TANK (REF.)
FWD
AFT VERTICAL SIDE PANEL
FORWARD VERTICAL SIDE PANEL (REF.)
CENTER VERTICAL SIDE PANEL (REF.)
LEFT SIDE OF GALLEY
VIEW LOOKING OUTBOARD.
(FOOD CARTS NOT SHOWN FOR CLARITY)



M1-0100-38-130

R R R Position Indicating Pneumatic Check Valves
Removal and Installation
Figure 401

EFFECTIVITY: ALL

0018

(7) Retain jamnuts for reinstallation of replacement check valve.

B. Installation

R (1) Verify circuit breaker opened in Step 3A(1) is open and tagged.

(2) Remove protective caps from position indicating pneumatic check valve and install check valve in mounting bracket.

(3) Install jamnut and tighten.

(4) Reconnect upper and lower air lines to position indicating pneumatic check valve.

(5) Reconnect electrical connector to position indicating pneumatic check valve.

(6) Remove tag and close circuit breaker opened in Step 3A(1).

(7) On galley right circuit breaker panel, zone 130, verify WATER SYSTEM PRESSURIZATION 1 (G2) and 2 (G5) circuit breakers are closed.

(8) Turn on electrical power (Ref. 24-41-00).

R R (9) When compressors start operating, perform following checks:

R R R R R (a) On galley right circuit breaker panel, open circuit breaker WATER SYSTEM PRESSURIZATION 1 (G2). Verify No. 1 compressor stops operating and WATER CPRSR 1 light on the Flight Engineer/Second Officers annunciator panel comes on.

R R (b) Close circuit breaker. Verify compressor starts operating and annunciator warning light goes out.

R R R R R R (c) On galley right circuit breaker panel, open circuit breaker WATER SYSTEM PRESSURIZATION 2 (G5). Verify No. 2 compressor stops operating and WATER CPRSR 2 light on Flight Engineer/Second Officers annunciator panel comes on.

R R (d) Close circuit breaker. Verify compressor starts operating and annunciator warning light goes out.

(e) Leak check fittings using leak detector solution.

(10) Turn off electrical power (Ref. 24-41-00).

(11) Reinstall aft vertical side wall panel as follows:

R (a) Tilt top edge of panel outboard so top edge enters channel. Push bottom of panel against structure. Align studs in bottom edge of panel with receptacles on structure and turn each stud 90 degrees clockwise to secure panel to structure.

(b) Turn studs in overlapping edge of panel to secure panel to center vertical side panel.

(12) Reinstall serving carts removed in Step 3A(2) and close galley door.

AIR COMPRESSOR DRAIN VALVE - REMOVAL AND INSTALLATION

1. General

The air compressor drain valve is connected to the outlet port of each air compressor.

2. Equipment and Materials

O-ring

3. Referenced Procedure

12-15-01	Potable Water Tank - Servicing
38-41-00	Air Supply System - Adjustment and Test
38-41-06	Air Compressors - Removal and Installation

4. Removal/Installation

A. Removal

(1) On galley right circuit breaker panel, zone 130, open and tag following circuit breakers:

PASS. SVCE BUS 3R WATER

SYSTEM PRESSURIZATION

1 (G2)

2 (G5)

(2) Open water system panel and depressurize system pressure by pulling SYSTEM FILL OVERFLOW VALVE CONTROL HANDLE.

(3) Gain access to air compressor (Ref. 38-41-06).

(4) Locate air compressor drain valve on air compressor outlet port (Ref. Fig. 401).

(5) Loosen "P" nut, and disconnect air hose attached to air compressor drain valve outlet port.

(6) Remove clamp, and disconnect flexible hose attached to air compressor drain valve drain port.

(7) Loosen "jam nut", and remove air compressor drain valve.

(8) Remove "O" ring.

B. Installation

(1) Verify circuit breakers opened in Step 4A(1) are open and tagged.

(2) Install jam nut on inlet port of air compressor drain valve.

(3) Install "O" ring on inlet port of air compressor drain valve.

NOTE: The "O" ring is installed between jam nut and air compressor.

(4) Install and position air compressor drain valve on air compressor (air compressor drain valve inlet port mates with air compressor outlet port), and secure by tightening jam nut.

(5) Connect flexible hose (from overboard drain) to air compressor drain valve drain port, and secure with clamp.

(6) Connect air hose (from water tank) to air compressor drain valve outlet port, and secure by tightening "P" nut.

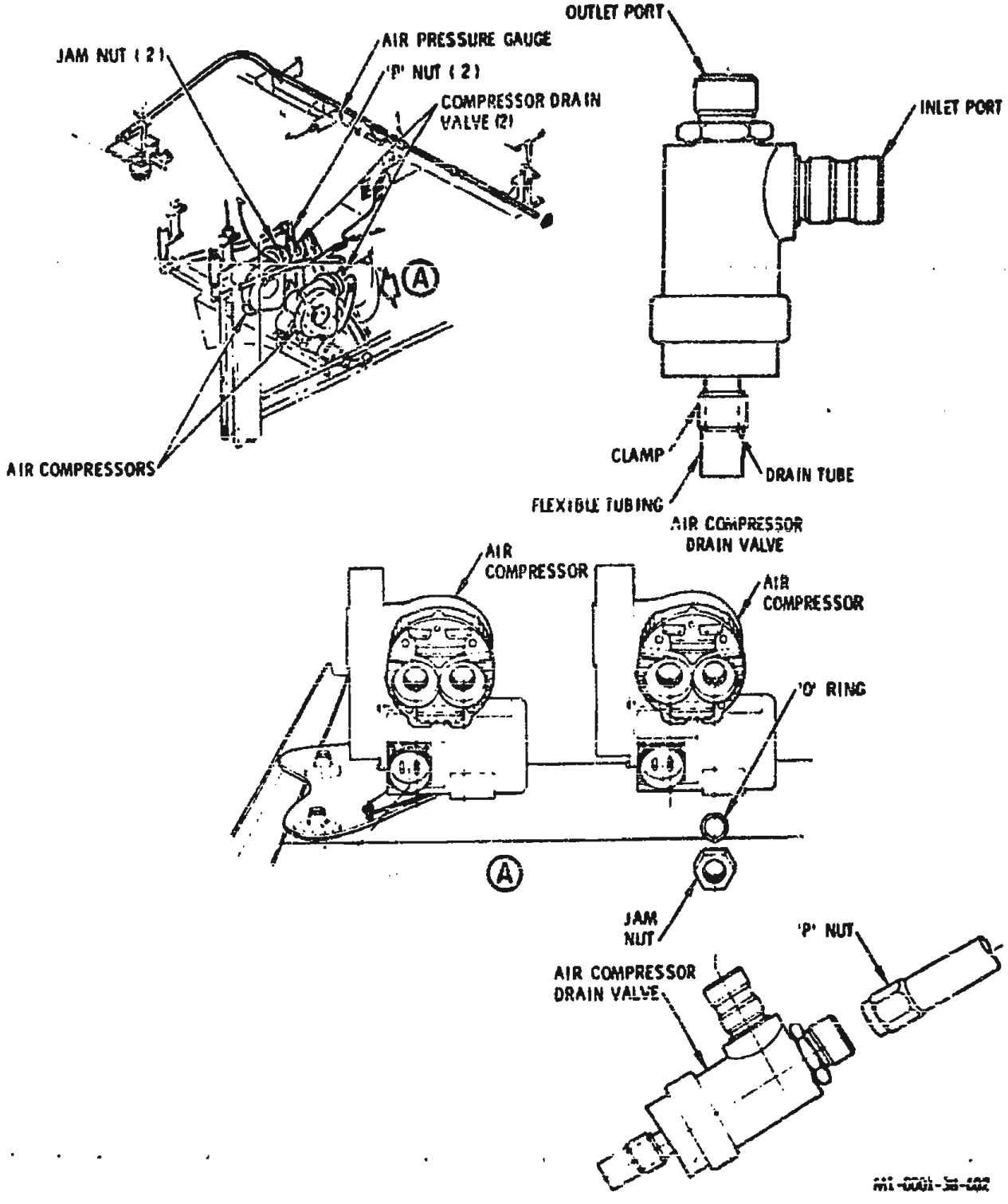
(7) Install all panels removed in gaining access to air compressor.

(8) Close aft cargo compartment door.

(9) Remove tags and close circuit breakers opened in Step 4A(1).

(10) Service potable water tank (Ref. 12-15-01).

(11) Test potable water system pressurization as necessary (Ref. 38-41-00).



Air Compressor Drain Valve - Removal and Installation
Figure 401

AIR PRESSURE INDICATING SYSTEM - DESCRIPTION AND OPERATION

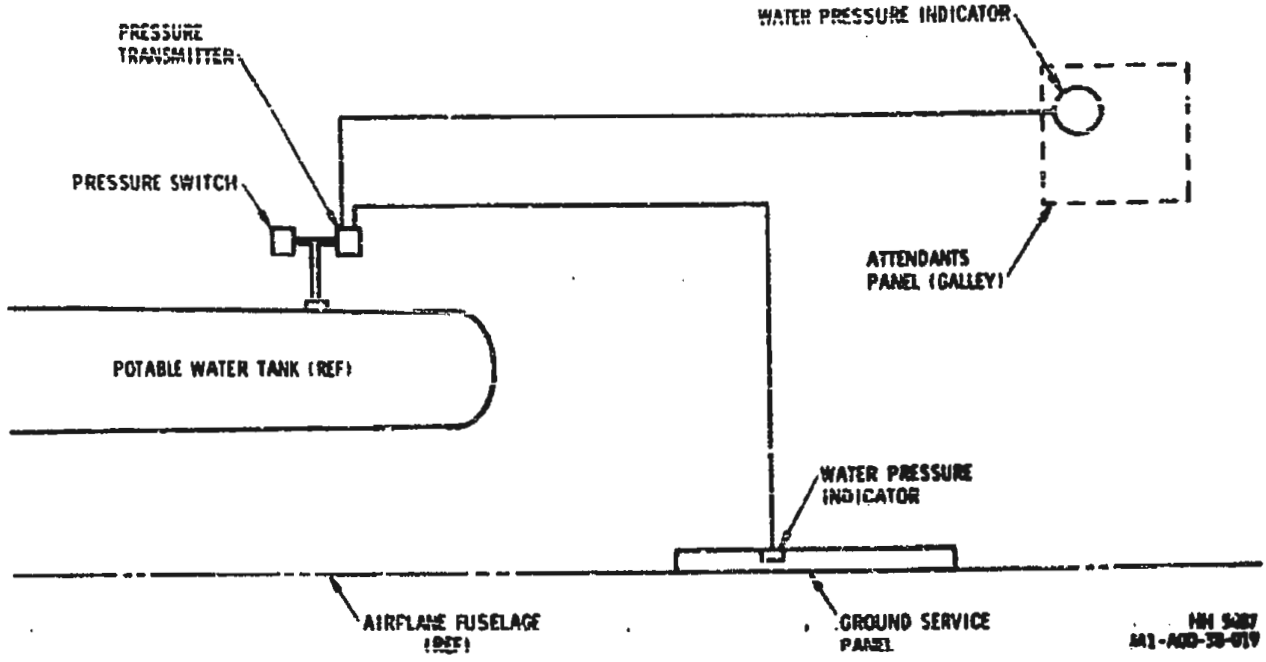
1. General

The air pressure indicating system monitors the pressure in the potable water system. The pressure indicating system includes two pressure indicators, a pressure transmitter, an electrical power source, and associated wiring (Ref. Fig. 1).

2. Operation

R The air pressure indicating system is an electromechanical
R system. The pressure transmitter receives 115V ac, 400 Hz power
R through the WATER QUAN/PRESS IND circuit breaker on the galley
R circuit breaker panel, zone 131 (Ref. Fig. 2).

R The circuitry of the pressure indicators is a synchro drive
R mechanism. The pressure transmitter is subjected to the
R pressure in the potable water system. Position of the sensor, relative to the coils, creates an inductive reactance. The inductive reactance determines the voltage output of the transmitter. The voltage output of the transmitter varies in direct proportion to the pressure in the system.



Air Pressure Indicating System Functional Schematic
Figure 1

3. Pressure Transmitter

A. Description

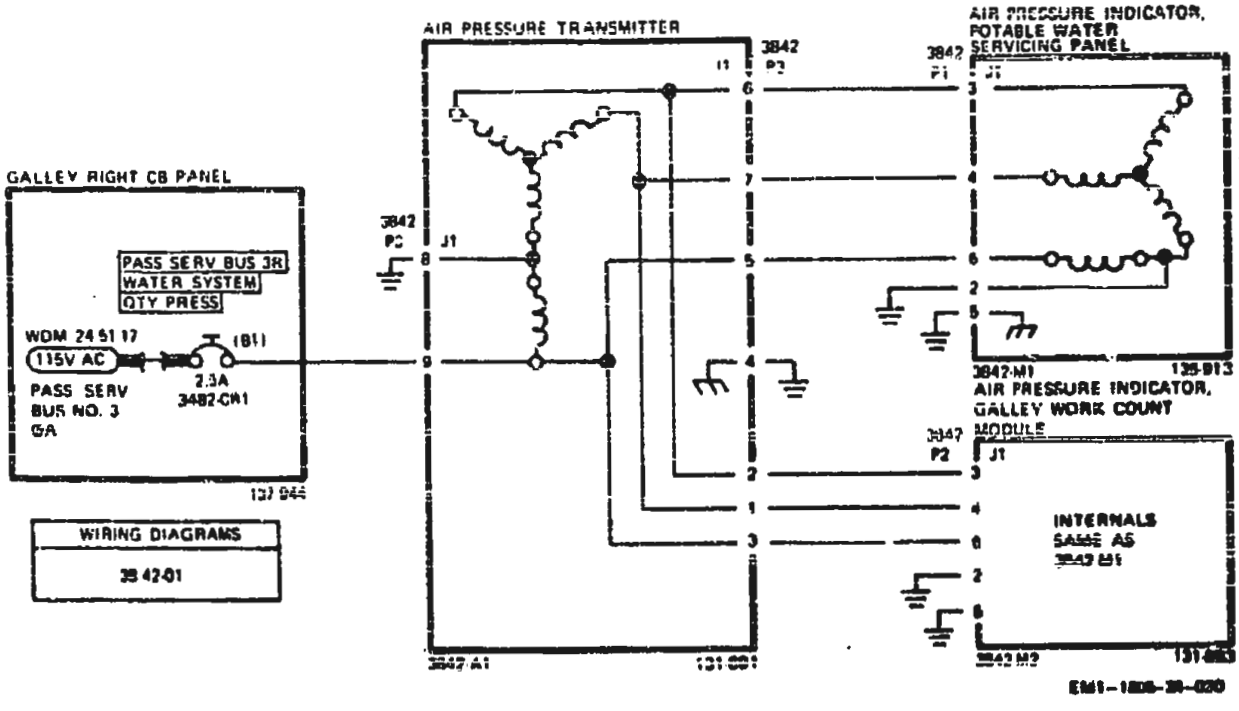
The pressure transmitter is installed in the plumbing aft of the potable water tank installation in the left side compartment of the galley outboard of the galley sink, zone 131. The transmitter includes a corrosion-resistant steel case and an electrical component section.

The electrical components consists of two coils, a system pressure sensor, and a 12-pin electrical receptacle. All internal circuits terminate in the receptacle. The component section is installed in the open end of the case. The case is sealed to prevent entrance of moisture, dust and gaseous vapors.

4. Pressure Indicator

A. Description

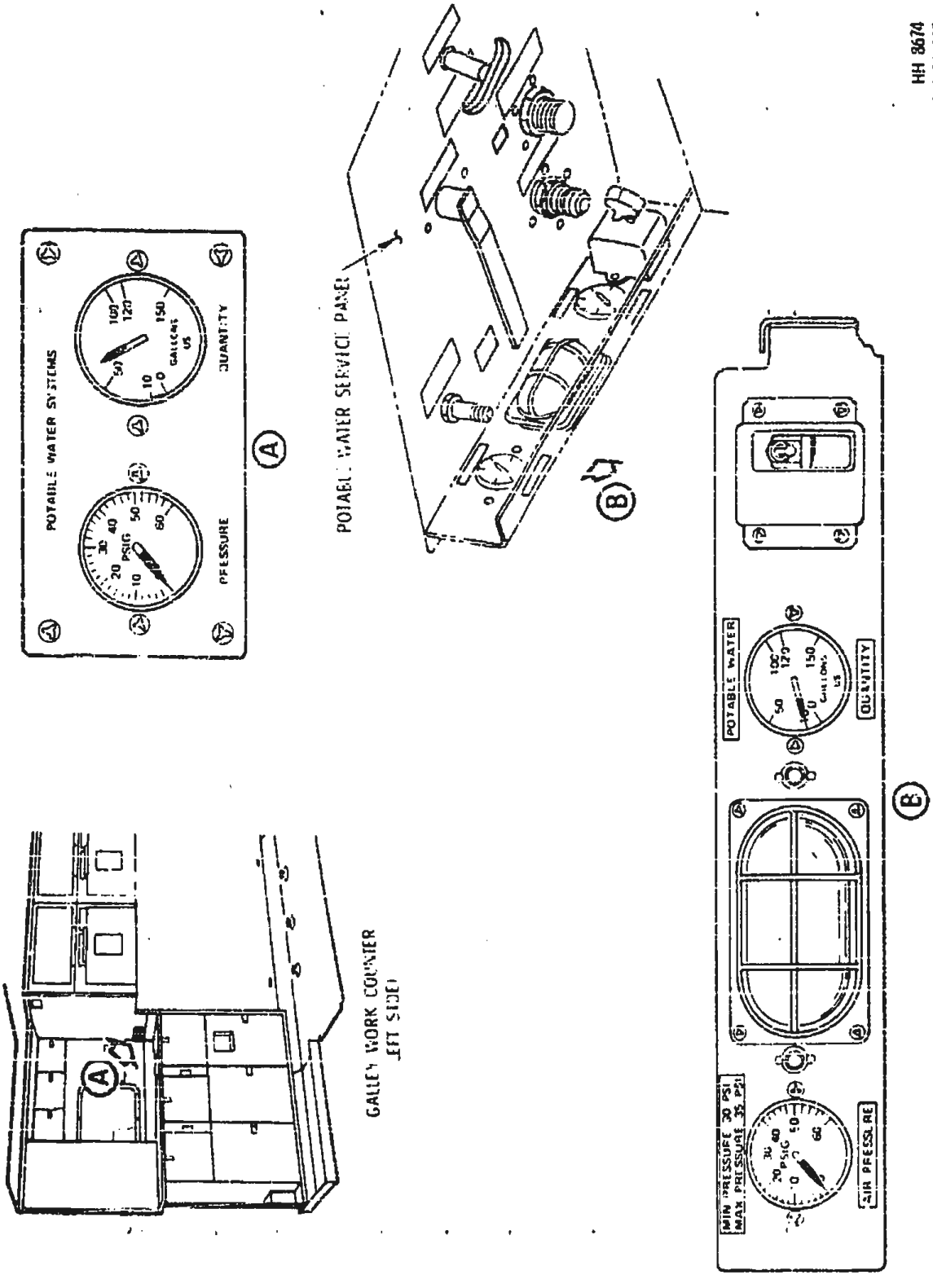
Two air pressure indicators are included in the air pressure indicating system. One pressure indicator is mounted on the food service specialists POTABLE WATER SYSTEMS panel in the galley, zone 130 (Ref. Fig. 3), and the other is mounted on



Air Pressure Indicating System Electrical Schematic
Figure 2

the potable water ground service panel, zone 136. The pressure indicator consists of the case, synchro, 12-pin receptacle, dial scale, and pointer.

The case is made of corrosion-resistant steel. The synchro mechanism is inserted into the case. All circuits terminate in the 12-pin receptacle. The dial scale is graduated from 0 to 60 psig in increments of 2 psig steps. The movement is accurate to within two percent of full scale reading.



HH 8674
M1-2202-38-009

Air Pressure Indicator
Figure 3

R PRESSURE TRANSMITTER - REMOVAL AND INSTALLATION

R 1. Equipment and Materials

R Leak Detector Solution, Semco 907, or equivalent

R 2. Referenced Procedure

R 12-15-01 Potable Water Tank - Replenishing

R 3. Removal/Installation

R A. Removal

R (1) On galley right circuit breaker panel, zone 130, open and tag WATER SYSTEM - QTY/PRESS IND (B1), WATER SYSTEM - PRESSURIZATION 1 (G2) and 2 (G5) circuit breakers.

R (2) At the POTABLE WATER SERVICE ground panel, pull the SYSTEM FILL & OVERFLOW CONTROL HANDLE and vent tank pressure; return handle to FLT POSITION (full in).

R (3) Above the galley work counter sink, open the ACCESS DOOR POTABLE WATER FILL/OVERFLOW VALVE (Ref. Fig. 401).

R (4) Disconnect electrical connector from top of transmitter.

R (5) Disconnect air inlet line 'B' nut from bottom of transmitter.

R (6) Remove jam nut under mounting bracket and remove pressure transmitter.

R B. Installation

R (1) Verify that circuit breakers opened in Step 3A(1) are open and tagged.

R (2) Install pressure transmitter in mounting bracket using jamnut and tighten jamnut (Ref. 401).

R (3) Reconnect air inlet line "B" nut to pressure transmitter.

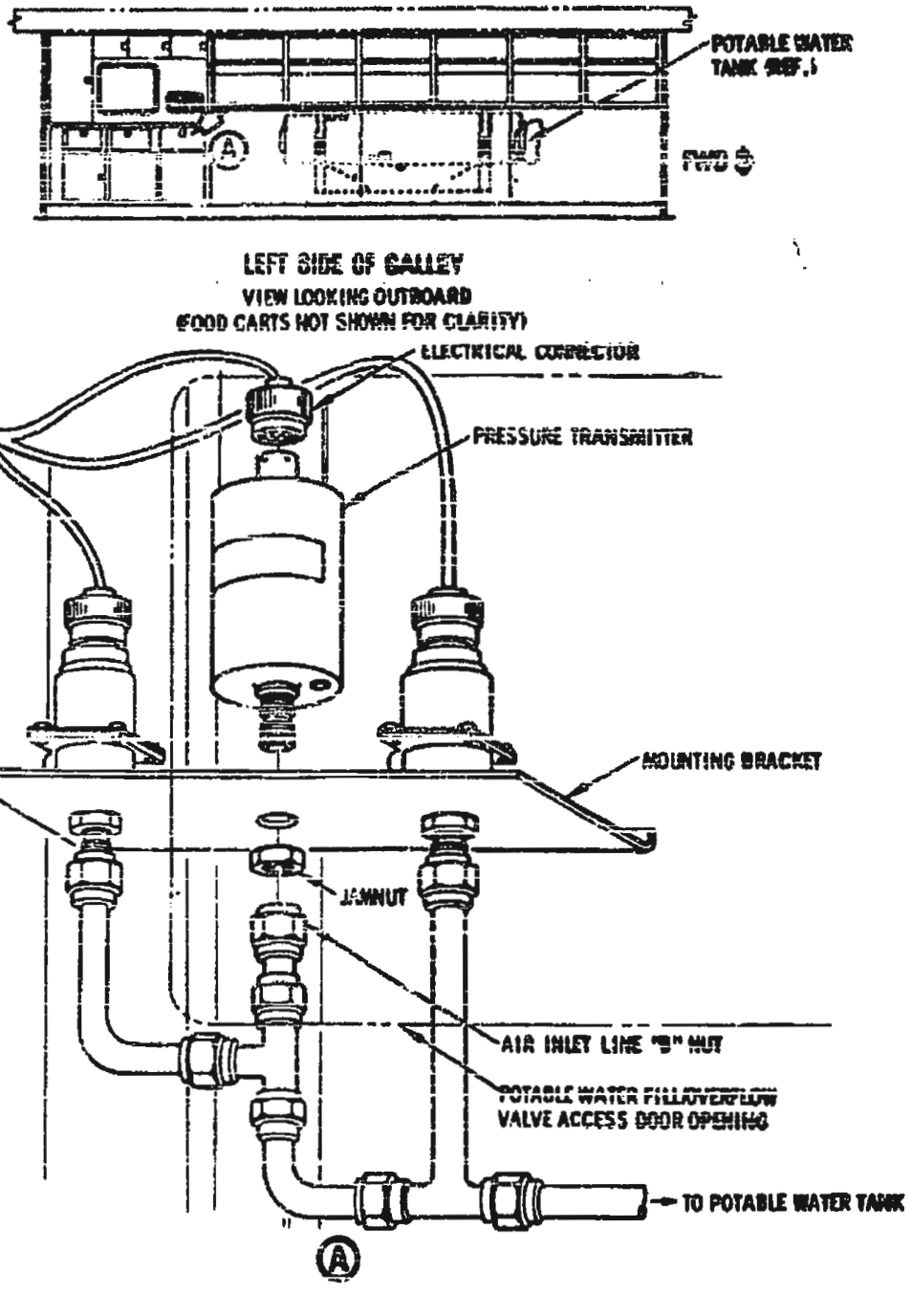
R (4) Connect electrical connector to pressure transmitter.

R (5) Remove tags and close circuit breakers opened in Step
R 3A(1).

R (6) Service potable water tank with air/nitrogen (Ref.
R 12-15-01).

R (7) Leak check pressure transmitter using leak detector
R solution.

R (8) Ensure that POTABLE WATER SERVICE ground panel is
R closed.



R Pressure Transmitter - Removal and Installation
R Figure 401

AIR PRESSURE INDICATOR - REMOVAL AND INSTALLATION

R 1. General

R The potable water air pressure indicators are located on the
R right side of the left galley work counter and on the POTABLE
R WATER SERVICE ground panel (Ref. Fig. 401). The removal and
R installation procedure is typical for all potable water air
R pressure indicators.

R 1. Equipment and Materials

Protective Cap

R 3. Referenced Procedure

6-40-00 Exterior Access Doors and Panels

R 4. Removal/Installation

A. Removal

R (1) On galley right circuit breaker panel, zone 130, open
R and tag WATER SYSTEM - QTY PRESS IND (B1) circuit
R breaker.

R (2) Locate and/or gain access to applicable indicator to be
R removed (Ref. Fig. 401).

R NOTE: Open POTABLE WATER SERVICE ground panel 192F
R (Ref. 6-40-00) to gain access to potable water
R service panel indicator.

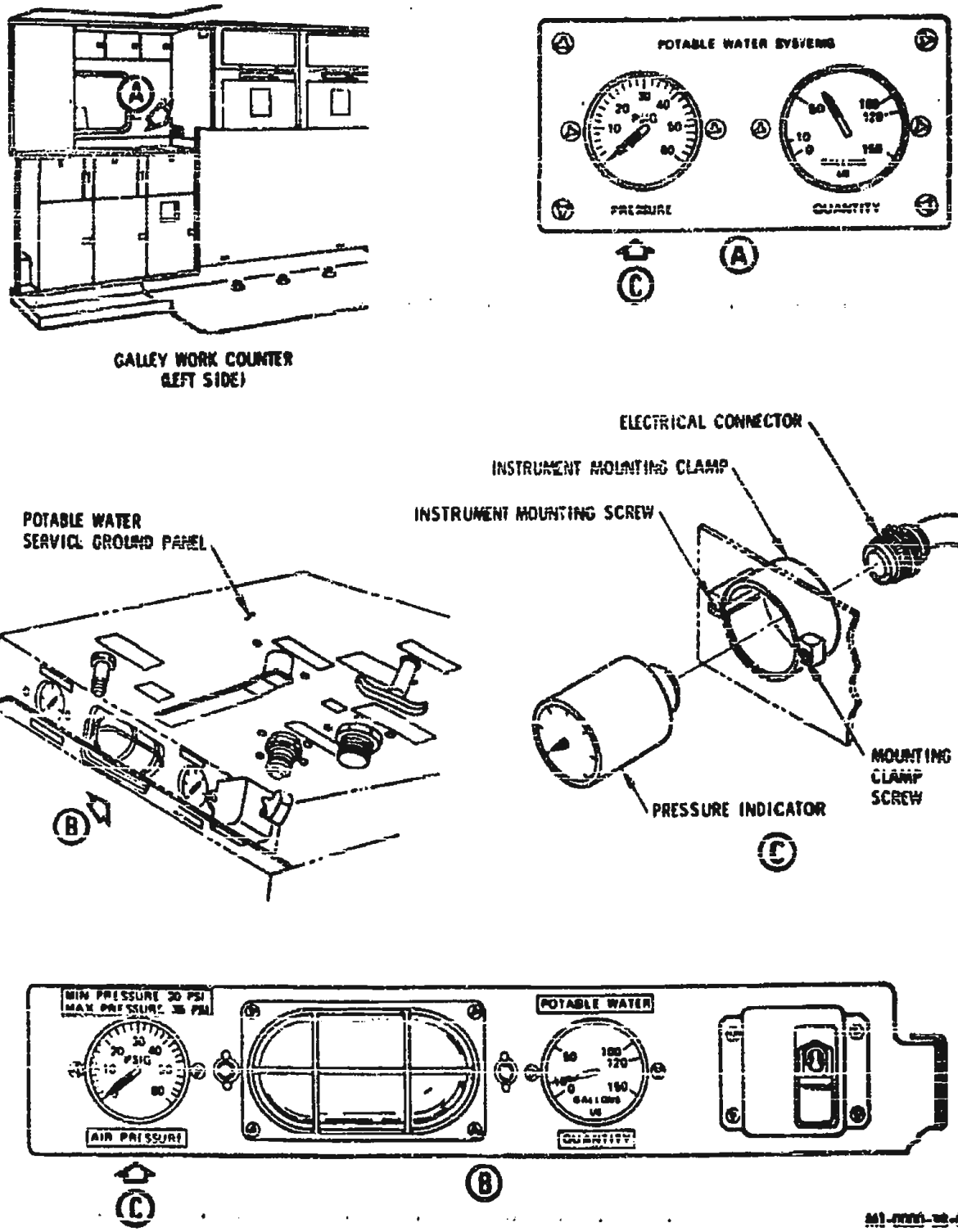
R (3) Loosen instrument mounting clamp screw on left side of
R the indicator.

R (4) Slide indicator out from mounting panel and disconnect
R electrical connector.

(5) Cap electrical connector.

B. Installation

(1) Remove cap from electrical connector and mate connector
R to indicator (Ref. Fig. 401).



R R Air Pressure Indicator - Removal and Installation
Figure 401

R EFFECTIVITY: ALL
R R
001B

(2) Insert indicator into applicable panel and position it properly against the panel.

R (3) Secure indicator by tightening instrument mounting clamp screw. Close access door if necessary.

R (4) Remove tag and close circuit breaker opened in Step
R 4A(1).

(5) Verify that indicator reads same air pressure as other
R air pressure indicator.